DOCUMENT RESUME

ED 044 754 CG 006 061

AUTHOR	Lichtenberg, Philip; Norton, Dolores G.
TITLE	Cognitive and Mental Development in the First Five Years of Life. A Review of Recent Research.
INSTITUTION	Bryn Mawr Coll., Pa.
SPONS AGENCY	National Inst. of Mental Health (DHEW), Bethesda, Md.
PUB DATE	Nov 70
NOTE	120p.
AVAILABLE FROM	Superintendent of Documents, United States Government Printing Office, Washington, D.C. 20402 ($.55 per copy)
EDRS PRICE	EDRS Price MF-$0.50 HC Not Available from EDRS.
DESCRIPTORS	*Child Development, Childhood, Child Language, Child Rearing, Children, *Cognitive Development, Developmental Programs, Developmental Tasks, *Early Childhood, *Early Experience, Human Development, Individual Development, Infancy, Intellectual Development, *Language Development, Mental Development, Motor Development, Perceptual Development, Personality, Personality Development, Program Development, Program Evaluation, Social Development

ABSTRACT

This report surveys writings by National Institute of Mental Health grant recipients who have investigated this first five years of life. The authors attempted to identify and correlate ideas, themes, perspectives and issues which can be useful in the formulation and evaluation of social policies related to infant and child development. Major themes include: (1) the child lives and grows through action which is double directed to himself and others, is binding to people and things, is playful and pleasurable, is environmentally stimulated, and is increasingly complex and creative; (2) the child is simultaneously autonomous and socially related. Subthemes under this latter include: (1) language and cognitive development; (2) the developmental stages for autonomy and social attachments; (3) the role of imitation; and (4) the attachments and separations of childhood. The concluding section reports on programs of action directed toward new ways of dealing with infants and young children. (TL)

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NATIONAL INSTITUTE OF MENTAL HEALTH

Cognitive and Mental Development in the First Five Years of Life

A Review of Recent Research

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November 1970

This report was prepared under contract number NIH-69-280 from the National Institute of Mental Health. The views presented are those of the authors, and do not necessarily represent the official position of the Institute or of the Department of Health, Education, and Welfare.

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Washington, D.C. 20402 - Price 55 cents

Foreword

In *Reflections on Big Science,* Alvin Weinberg states: "Science traditionally has two aspects: it is on the one hand a technique for acquiring new knowledge; it is on the other hand a means for organizing and codifying existing knowledge, and therefore a tool for application. Both aspects of science are valid."

The concept of science as a technique of acquiring new knowledge appears to be the more dominant conception of what science is all about. This is to be regretted. Traditionally, science as investigation has also implied freedom to pursue those problems that interest the investigator and hold promise of solution. The concept of research project funding is in keeping with this tradition. However, from the perspective of those agencies funding research for the public good, there is an equal need at various points to synthesize research findings to facilitate the implementation of science as a "tool for application."

Drs. Lichtenberg and Norton have accomplished the very difficult task of organizing and synthesizing the findings in research which has been funded in recent years by the National Institute of Mental Health in the important area of cognitive and mental development in the first five years of life. There has been considerable activity in this area. At the present time there exists a need to evaluate what has been learned and to consider the implications of this learning for future research and service programs.

The work of Drs. Lichtenberg and Norton represents not only an effort to evaluate where we are but also to provide a matrix for planning future directions. It is also an excellent example of Weinberg's second "aspect of science." It should be a valuable resource for those charged with the responsibility for research and service programs which focus on the early development of children.

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Director
Division of Special Mental
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Preface

This report is based primarily on a survey of writings about the first five years of a child's development by persons who have received National Institute of Mental Health grants for investigations of this earliest period of life. An attempt has been made to sample the reports of these investigators, many of whom are prolific writers, and to render a fair representation of their contributions and thoughts. Although some work cited was not supported by NIMH, the overwhelming majority of the studies referenced herein were conducted with such grant assistance. Not all of any one man's work is covered; nor have all of the materials which were surveyed by us been used, so that the bibliography presented itself represents a selection from a larger body of writings reviewed.

The report is not simply a record or listing of major findings of the concerned investigators. Rather, it is an attempt to identify and correlate the ideas, themes, perspectives, and issues emerging from their studies which can be useful in the formulation and evaluation of social policies related to infant and child development in the present and future.

Given the fact that there are many schools of thought, many theoretical affinities, and many disparate ideological commitments among the investigators, the problem of providing cohesiveness as well as inclusiveness of the work of so many persons was a major difficulty. The studies did not fall into simple categories and classes on their own. Had we followed each writer in his own terms, with his commitments and theoretical biases, we would have mastered the element of inclusiveness, and faltered in respect to cohesiveness. Had we simply provided an account based upon a tightly knit perspective of our own, we would have achieved unity at the expense of many of the writers.

Accordingly, we have tried in the report to strike a balance between these tendencies. It has been necessary for us to reformulate many of the statements of investigators in order to achieve commonality with the statements of others. It also has been necessary to try to take a position in respect to the many topics that have been covered. Sometimes it has seemed to us that we have squeezed ideas from one viewpoint into that of another beyond what is likely to be preferred by the author, although we have never knowingly distorted the fundamental ideas of any author. At other times we have felt that we were too inclusive, that an idea we have inserted in one area is not definitively in that area, but fits there better than any place else. Given the task and the profound variability of interests and accomplishments, we see these weaknesses as inevitable and minor.

We have minimized certain areas of effort. We have not attended to the history, quality, validity, or other aspects of instruments for measuring cognitive and mental development. We permitted ourselves this exclusion because that task is itself a major one and would require as much effort or more than we have put into the present analysis. Furthermore, instruments are in fact embodiments of theory and of perspective, so that by attention to the theories and perspectives being proposed, we have encompassed the contributions that we could have taken from an incomplete interpretation of instruments.

Similarly, we have not incorporated work on animals. Again, proper treatment of this area itself would take a full study. We believe that the greatest part of animal research is in fact derivative from human research, such as the work on early infantile experience, and does not add new perspective. Such derivative research would contribute certainty but not novelty when compared to positions developed elsewhere about human infants and young children. At this time in the progress of the field of human development, the translation from findings in studies on animals to human instances is extremely difficult and tenuous. Such translations would need to be made and verified quite thoroughly before one would create social policies for human infants on the basis of their indications, and such translations have not yet been accomplished in any major degree. Animal research is not demeaned by this position. Rather, we mean merely to affirm the notion that the findings from work with lower animals must be replicated upon human infants and children before sound social policies and programs can be safely launched from them.

We have neither attended to the typical therapies provided for emotionally disturbed children nor to the cognitive and mental development of mentally retarded children. These areas did not seem central to our assignment. Nor has much attention been paid to studies on children older than five years of age.

With all these exclusions, the amount of material left to cover is enormous. Each time we turned to a new author, a new area of investigation, a new theme, we found ourselves looking out upon never-ending expanses of thought and speculation. It seemed to us that each step brought us to greater diffuseness rather than toward a goal. There is no way of estimating how close or far we are from the inclusiveness we hoped to achieve. Each reader will see this for himself; and each will have a different judgment. We have tried to balance direction with incorporation and must bear the consequences of that attempt.

The "Summary of General Themes" which begins the report sets forth in the broadest terms some of the main themes that emerge in the following pages. Not all themes are summarized here, but reference is included to many of the significant thrusts of the material covered. The "Summary of General Themes" is not meant to stand alone, but to represent statements which seem reasonable to formulate on the basis of the extractions from the literature which have been incorporated into this review.

Philip Lichtenberg, Ph.D.
Dolores G. Norton, Ph.D.

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Summary of General Themes

The growth and development of the child during the first five years of life enables the child to expand beyond dependence on the central tendencies of his constitutional nature and the dominating stimuli from the environment to a more complex reliance on many of the components of his constitution and much of the environment in which he lives. As the child matures, he is less committed to repeat his past, more able to create new forms in the present.

The child's growth and development happens when he is engaged in actions with other people that bind the child and the others in mutually fulfilling ways. Such actions entail the child's self-regulation, his initiative in dealing with the others, and a reciprocity of self-regulation and initiative on the part of the others. Such actions take place for the child under conditions of playfulness and pleasure. The mutual construction of actions that bind adult and child in real, concrete, and satisfying forms, rather than training imposed upon the child to implant the proper ways of living, is the caretaking process most associated with productive growth.

Disadvantaged children are turned off by failure to create such actions. Autistic children are never turned on due to failure to create such actions. Mutuality and pleasure may be difficult to establish if the child's constitution is outside the normal range or if the caretakers are burdened by worries and cares of their own. Such actions come about only when stimulations and challenges in the environment are within the range of capacities of the child and of the adult.

With normal growth and development, the child is increasingly open to and interested in novelty in his world. He explores further and further; creates more complex encounters; develops cognitive and language capacities which enable him to discover and regulate himself more intricately and to discover and handle the world in new and unique ways.

The child is both autonomous and socially related from his earliest days. As he grows, his autonomy takes new forms and enables him to be socially related in new and superior ways. The child's autonomy starts with his constitutional preferences, which must be taken into account in his social encounters if he is to prosper. His autonomy develops through various stages and reaches a high point by three years of age. At this time his basic ways of self-regulation are established, which accounts for the importance of the first three years of life. If his life during the first three years is not happy and fruitful, he will have established means for avoiding intrusions by the world and by novelty in the world. He will therefore be more poised against help and will resist it, including the help in cognitive and emotional development that is called education.

His social relatedness also passes through a series of developmental stages until he is able to form attachments to individuals at various levels and degrees of intimacy. The child is not simply attached to his mother from first to last in this age period. First he segregates her from among all his attachments; next he passes through a period of intense, singular attachment, and then expands his interests again. This theme entails a diminution of the need for a single maternal figure for healthy growth and development.

Cognition and language are components of action and follow the principles enunciated above with respect to actions. Cognition and language appear increasingly as the child becomes more differentiated. They grow when the child is challenged from within and without by tasks and demands that are coordinated with the capacities the child possesses. They prosper during playful and pleasurable encounters. They are part of the child's increased and increasing autonomy. They are connected with handling the new and the unusual. They are the grounds for the further unfolding of autonomy in such matters as self-restraint, ability to resist temptation, and capacity to take upon oneself self-criticism.

Children learn the ways of social relatedness from the social relations they experience, rather than from direct tuition. Children also learn through imitation, which is part repetition of what is observed and part experimentation with self.

The influence of the social interaction of the child on his development is particularly evident in the cognitive and language development of the child. Cognitive development is a function of the interaction between the genetically inherited characteristics of the child and his life experiences. His life experience is a function of his social relatedness. The child develops language comprehension and finally language production, as a result of the language model of his environment, his own internal schema of organization, and self-instruction in which he practices what he has experienced and selected out of the language that flows around him.

Social programs for disadvantaged children and for severely disturbed children of different sorts are relatively effective. Short-term programs make some alterations which are of relatively short-term endurance. Intensive, directed programs, which involve high ratios of adults to children, which last a long time, which include alterations in educational and family institutions, and which are founded upon the principles listed above in respect to mutuality, initiative, pleasure, etc., in actions conducive to growth, are significantly positive in their influence. Most writers are pessimistic about accomplishing the major changes in children that are needed if the programs are not intensive and prolonged. Parents as well as children are beneficiaries in most compensatory education programs. Parents as well as teachers are also vital to rendering, as well as receiving, corrective efforts in education and therapy.

The evidence seems consistent in the various materials under review concerning the wisdom of further searching for the magical and relatively inexpensive social technique or engineering detail with respect to children under five years of age. There is none on the horizon. The proper care for children during the early years must involve a relatively high frequency of concrete encounters between adults and children in a context of mutuality and pleasure and challenge. Such conditions can only be met with the expenditure of vast resources. The remedial program that accompanies the scientific evidence adduced herein, thus, is a program that can promise little with demonstrations, or short-term, limited, status-quo-oriented educational and therapeutic services. It is a program that first calls for the development of national understanding and commitment to the promotion of life for masses of children, rather than toleration for the turning off, the closing out of life for them at an early age.

Part I. The Child Lives and Grows through Action

General Statement

The infant and child have come to be considered in a new light, with one of the dominating themes defining this new orientation being the idea that the child lives and grows through action. The infant is an actor. He is doing things. Growth and development are dependent upon the engagement of the child in productive transactions. The consequences of normal growth and development are reflected in the child's increasing ability to be complex and creative in the fashioning of his action and to construct his actions in accordance with a greater variety of conditions.

Part I includes an exploration of several aspects of the theme of action as a central issue in growth and development. The following subthemes are considered:

1. Action contains a double directedness; the child relates to himself and to others at the same time.
2. Action binds the child to people and things.
3. Playfulness and pleasure in action are essential to growth.
4. The child constructs actions when the environment offers stimulations within the range of his capacities.
5. As the child develops, his actions become more complex.
6. As the child develops, his actions entail increased creativity in dealing with the new.

Action Contains a Double Directedness; The Child Relates to Himself and to Others at the Same Time

A defining characteristic of action is that the organism is simultaneously organizing its inner component parts into a unity, and at the same time forming a systematic relationship with things and people in the outer world. The organism is doubly operative in action. As a totality, as a unit, as an entity, it is operative in organizing and regulating the elements that are within it. As a part of a context, it is operative in coming to terms with that which surrounds it. These are not separate or separable efforts, but are mutually intertwined.

This perspective on the definition of action is contained in the writings under review in respect to the general theme of adaptation, adjustment, and self-regulation; in the distinction between action and motion; and in a series of special instances including intelligence, gastric secretions, the self-concept and self-awareness, visually guided behaviors, and emotion.

DesLauriers and Carlson (1969) speak to the general problem of adaptation when they note that we are faced with the paradoxical situation of a growing organism whose structural organization determines what is good or not for its growth in the environment, and whose environment determines what at any time will be the condition of its structural organization.

Anna Freud (1965) points to the same matter. She notes that the mental equilibrium of human beings is based, on the one hand, on certain fixed relations among the inner agencies within their structure, and on the other hand, between their entire personalities and the conditions of the environment. She explicitly cautions against a simplistic environmentalism which assumes that the organism-environment relation can be taken independently of the organism regulating itself. She points out that nothing should convince the child analyst that alterations in external reality can work cures. Such a belief would imply that external factors alone can be pathogenic agents and their interaction with internal ones can be taken lightly. Such an assumption runs counter to the experience of the analyst, she contends.

Still on the matter of general adaptation of organisms, Hunt (1965), urges us to adopt the perspective of Miller, Galanter, and Pribram, who use TOTE (test-operate-test-exit) to replace the reflex arc. This concept is based on feedback notions which are increasingly important in the understanding of action. The organism has standards much like a thermostat and is continually checking its output and the environmental conditions against these standards. The organism relates to itself when it is testing, when it is comparing its situation against its standards, and relates to the environment in respect to the inputs from the environment that are incongruous with the standards of the test.

Murphy et al. (1962) suggest that children prefer actions which involve the use of self as well as a relation to an object. That is, mobilizing oneself in effort when relating to others builds action.

Writing on the general topic of adaptation, Sander (1964) is also explicit about the double-directedness of action. He suggests that adaptation is process. An organism cannot be adapted without being adapted *to something else*. Adaptation is the fitting, and adaptedness is the fitness through which a system is harmonized with the conditions of its existence. An important aspect of adaptation, says Sander, relates the external aspects of adaptation to internal aspects of organization. He quotes Piaget in support of his point of view: ". . . organization is inseparable from adaptation: they are two complementary processes of a single mechanism, the first being the internal aspect of the cycle of which adaptation constitutes the external aspect."

Stechler and Carpenter (1967) also promote a commitment in general understanding of the child to the generality of this double-directedness in adjustment. They argue that the neonate is a self-organizing system. They assert that it is wrong to try to understand the organization of internal states without regard to the steady flow of inputs which in part determine organization. The goal of the neonate, as of the organism generally, is to minimize the mismatch between the always developing organism and the constantly changing environment. They refer us to Paul Weiss, von Bertalanffy, and Miller, Galanter, and Pribram on the organism checking its operations against an established aim.

Indirect support for this orientation on general adaptation comes from the field of operant conditioning. Lovaas et al. (1966) suggest that one must use operant conditioning rather than classical conditioning in working with autistic children. They say autistic twins they studied did not respond to classical conditioning because such conditioning assumes attention and orientating actions on the part of the subject (i.e., self-regulation in respect to the experimenter) and autistic children lack such attention. Operant conditioning, which depends upon what behavior the organism emits in respect to its own self-regulation, and which then acts to shape such behaviors, recognizes the necessity to account to some elements of the double-directedness of action. Operant conditioning fails, however, to see the organism as a whole relating to its parts.

This double-directedness of action is important not only in the general view of adaptation, but also in distinguishing between action and motion. The infant is a person in action, not in motion, unless he is retarded or seriously disturbed. A key development in understanding the grounds for differentiating action and motion is the revival and elevation to importance of the concept of "reafference." Held (1965) and Teuber (1964) and, according to Teuber, Sperry, have been central to this development. Held suggests that the correlation entailed in the sensory feedback accompanying movement—reafference—plays a vital role in perceptual adaptation. It help the newborn develop motor coordination; it figures in the adjustment to the changed relation between afferent and efferent signals resulting from physical growth; it operates in the maintenance of normal coordination; and it is of major importance in coping with altered visual and auditory inputs. Teuber sees this as the basis for sensorimotor coordination. He refers to the process in the following way: A central discharge (which he calls a "corollary discharge") is emitted each time we make a voluntary movement. Thus, as the efferent signals move out, from the motor system to the peripheral effectors, there is concomitantly a massive discharge from the motor to the sensory system within the central nervous system and prior to any return signal from the periphery. In fact, he continues, these return signals—the reafferent streams that move back up into the central nervous system—have to be compared centrally with the expectation of the changes in the input that result from the movements our body is about to make. A voluntary movement would be one in which there is a corollary discharge by which the organism resets its central sensory mechanisms for the anticipated change; involuntary or passive movement would be without the corollary discharge to meet the input. Thus, action involves the organism readying itself for inputs at the same time that it intrudes upon the world. Motion would be either passive response to inputs or merely self-regulation.

An illustration of motion rather than action, as found in children who were retarded in development, is given by Dennis (1960). He describes how retarded children engaged to a considerable extent in automatisms such as head shaking and rocking back and forth. Often this was quite vigorous, and could not be simply motor weakness. These children scooted but didn't walk. Thus, they were capable of motion, and of limited or primitive forms of action, but they were not actors in the full sense of the term.

A further distinction between action and motion concerns not the organizing function, as in reafference leading to preparedness for input, but the already organized system. Wolff (1966) observed that attending to an external event such as a moving object, inhibits diffuse activity. Stechler (in Stechler and Carpenter, 1967) believes that he has established an innate rudimentary link in the newborn between perception and the articulated regulation of excitatory states. Infants were noted to react differently to an air puff on the abdomen when they were looking at a pattern and at a blank stimulus. And Wolff and Simmons (1967) suggest that the nervous system is organized at birth in a hierarchy of dominant and subordinate motor functions such that, for example, sucking the nipple inhibits diffuse motility. Action on an object (including concerted attention directed at that object) depends upon an organized internal system.

The notion that action is doubly directed impinges not only upon the general theme of adaptation and the distinction between action and motion, but also upon a series of discrete issues. We come upon it in discussions of cognition and intelligence, for example, wherein we see cognition as part of both self-regulation and relation to the environment. Bruner (1961a) utilizes the idea when he argues that an organism must develop a model of the environment in order to operate effectively. If sensory restriction or deprivation is imposed early in life, he asserts, the organism fails to develop such an environmental model and, consequently, later adult transactions with this environment are impaired. Without such prior learning, the centrifugal control functions of the nervous system are without a program, without a basis for predicting that certain events are more likely than others, or preclude others, and have no basis for selectivity. When one prevents an organism from monitoring the fittingness of its percepts and cognitive structures, one is cutting the organism off from a principal source of maintaining adjustment.

Piaget's notions of assimilation and accommodation, including their joint operation at any one time, exemplify the double-directedness as applied to intelligence as a component of action. Elkind (1969) presents this line of thought quite clearly. On the plane of intelligence, he says, we inherit processes of assimilation (processes responsive to inner promptings) and of accommodation (processes responsive to environmental intrusions). Assimilative processes guarantee that intelligence will not be limited to passively copying reality, while accommodative processes insure that intelligence will not construct representations of reality which have no correspondence with the real world. When we remember that cognition follows upon successful sensorimotor actions, this mutual interplay of assimilation and accommodation, of self-regulation in relating to the world, emphasizes the importance of the orientation to adaptation that seems currently dominant.

As Bruner and Piaget relate the double-directedness aspect of action to intelligence and cognitive functioning, Stechler and Carpenter (1967) tie it to emotion. They assert that emotion arises when there is a major discrepancy between the attempt to act on a perception and the ability to do so. The failure of the act to alter the feedback from the environment so as to make it conform more closely to the perceptually based motive, produces the emotion.

Held and Hein (1963) and Held and Bauer (1967) relate the issue to visually guided behavior. They argue that self-produced movement, with the visual feedback that accompanies it, is a necessary ingredient for the development of visually guided behavior. One must move the hand through one's own efforts, see it like an object outside, and relate to the moving hand internally and externally, in order to master such behavior.

This view of the development of visually guided behavior is similar to Hunt's (1965) analysis of the means by which the young child gains control over his own voice. Babbling appears to him to consist of ear-vocal coordination in which the child manages to gain such control by making sounds he hears when he vocalizes. Thus, babbling and speech, the grounds for communication with others, are heard by the infant and help him to regulate himself.

The development of a sense of oneself comes with the development of a sense of the world. This usually happens through action upon the world. Thus Witkin et al. (1962) take the common notion that at the beginning the infant experiences himself and the environment is a more or less amorphous, continuous mass. Development, which comes through actions of the child on the world, in Werner's terms, produces an increasing polarity between the self and the nonself. Werner states in the foreword to the book by Witkin et al. that there is a "reciprocal relation between self-differentiation and nonself- (social, objective) differentiation." The child is differentiating the world and himself at the same time, as it is to be expected from the fact that action causes the child to relate simultaneously to himself and to the world.

Murphy (1967) adds to this line of thought by remarking that recent work gives far more respect to the spontaneous ways in which the child learns about himself and about the world, and how he can function in it. She gives the example of the importance to self-awareness of the child's learning to make something happen. And Deutsch (1967, 1968) notes that for Negro children the low scores on concept of "self as subject" (i.e., as perceived by himself) are paralleled by low scores on "self as object" (i.e., as perceived by others).

Quite consistent with the whole point being made here is the description of gastric secretion in a very young child, Monica, that is rendered by Engel and his coworkers (1956). They remark that when Monica was outgoing and relating to persons in the environment, whether affectionately or aggressively, her stomach secreted actively. When she withdrew or fell asleep, her gastric secretion diminished. As she became more active in her sleep, her gastric secretion rose. The most active secretion was noted upon reunion with a loved person from whom she had been separated. Along with other behavior activities such as reaching, touching, grasping, and kicking, all of which take very active cognizance of the object in the environment, the stomach seems also to behave as though preparing for food.

The aim of therapy for the autistic child held by DesLauriers and Carlson (1969) reflects and reveals this perspective of double directedness in action. They say that we must do more than make the child affectively respond to human beings. The child also has to be made, though his affective arousal, to develop and enjoy the totality of his functioning organism as it deals with, adapts to, and copes with the variety of objects, situations, and circumstances that are part of living as a human being. What they prescribe for the autistic child belongs to every infant.

These various observations and theoretical perspectives which rely upon the understanding that action involves self-regulation and other-directedness at the same time, make clear to us that the infant and the child are indeed actors. They are not simply responders to a conditioning, socializing world, for they are dealing with themselves when they are attending to the world. They are not willful, self-centered monsters, since they are engaging the world as a necessary part of the discovery and development of themselves. They help create the lives they lead from the very beginning of their existence.

Action Binds the Child to People and Things

Another defining characteristic of action is that it binds the organism to its environment. For action to be other than motion or behavior-as-movement, the organism must in fact be engaged in transactions. When the child can be said to be in action, he will be seen as part of a new unitary system which includes the child and some discrete entities in his environment. Action ties an organism to an object.

Action involves mutuality and reciprocity between the child and his caretaker. This is a prominent theme in the writings under review. In an overview of research in psychological development of infants, Kessen (1963) asserts that it is on this issue that the psychologist's view of the child has changed most dramatically in recent years. The infant is active, and the relation of infant and caretaker is reciprocal. The shift has been from the child who is a passive receptacle, into which learning and maturation pour knowledge and skills and affects until he is full, to the child as a complex, competent organism who, by acting on the environment and being acted on in turn, develops more elaborated and balanced ways of dealing with discrepancy, conflict, and disequilibrium.

DesLauriers and Carlson (1969) are right on the mark of the trend. They say that the child needs his mother, and the mother, to be a mother at all, needs the child. Without a variety of stimulations which help shape the internal structural organization of the total field of experience, the child will not grow and develop in a human way. Without the incessant demand of the child upon his environment for stimulations and contact, the mother will be unable to know how to be a mother. There is reciprocity between them. DesLauriers and Carlson illustrate this view from their own work. They say that for the two-year-old child, when the child and the mother are in each other's presence, where neither can escape the other, mother and child demonstrate in their activities a type of anticipatory set that reflects dramatically the initiative of the child in moving toward the mother and inciting from her a movement toward him, and the initiative of the mother in giving support to any movement of the child towards her. Further, they assert, what brings the child and mother into communication is expressed in reciprocal activities, in motility and spatial displacements.

Freedman (1967) puts the matter in evolutionary terms but makes the same point. He notes that the very first behavior of the newborn human is the cry, a common mammalian occurrence. Crying in infancy seems to him to serve the common mammalian function of arousing the parent to caretaking activities when the infant's survival is threatened and of provoking a parental-infant interaction that is mutually arousing and satisfying, guaranteeing repeated contacts for caretaking and sensory stimulation of the infant.

Pines (1969) points to the code of mutual expectancy between infant and parent; the parent responds to the initiative of the child. At four months of age, for example, the infant will smile more readily at an object that smiles back.

The point is also well put by Murphy et al. (1962). The mother and child are seen to live in "mutual regulation." The mother and baby together find a way of living which meets the baby's needs, tempo, and approach to life to a sufficient degree, while at the same time expecting him to utilize and to some extent fit into the patterns of his mother.

The general theme is sounded also by Sander (1964), and Sander and Julia (1966). Adaptation between two systems, says Sander, is not a matter of passive toleration but involves an interplay of their active affinities. Adaptation is primarily a reciprocal relationship between the organism and the environment. Building on that theme, Sander and Julia have devised a method of continuous automatic monitoring of neonate-environment interaction. They wanted to assess the degree to which stabilization is achieved by infant-caretaker coordination. They assessed infant activity and crying concurrently with certain categories of caretaking interventions, comparing nursery and rooming-in babies. The idea was that rooming-in would provide more reciprocity. The nursery group showed a steady increase in motility during the first ten days of life with no shift to a preponderance of daytime activity. The rooming-in group showed a reduction in total motility and a shift to daytime activities. Thus, the rooming-in babies engaged more in action, less in random motility, and were able to achieve this through mutual regulation.

Randomness and diffuseness versus directed action is also a distinction noted by Greenberg (1962), and again this is in the context of a description of the interplay between parent and child of a mutual nature. He suggests that a good proportion of activities in infant care seem to be in the service of maintaining a state of behavior akin to what is seen in minimal random activity, optimal tension, or comparative relaxation. An infant in extreme random activity will activate its mother to behavior directed at achieving a state of lesser discomfort. These repetitions of need and gratification evolve about particular patterns which differ among mother-infant pairs according to their make-up.

Failures in development are commonly attributed to lack of mutuality between parent and child. In respect to language, for example, McNeill (1966) discusses more rapid and less rapid development in working out the English manifestations of linguistic universals. The child plays with his parents in regard to language, not learning *from* them but by interaction *with* them. Parents' expansions of the child's vocalizations are probably related to the facilitation of his discovery of local features of languages. Also, parents may expand (i.e., take what the child says and add to it while talking with the child) in order to verify their own understanding of the child's speech. The interplay is thus mutual confirmation. When the parent does not expand, as is true in many lower class, non-academic families, the child is forced to work out the appropriate English manifestations of the linguistic universals on his own. Thus, there is slower development in language where there is lack of reciprocal play with words. Kagan (1969) makes the same point. He says that longitudinal studies in his laboratory reveal that lower class white children do less well than middle class white children on tests related to those used in intelligence testing. These class differences seem to appear as early as one or two years of age and they occur because the quality of mother-child interactions is different in regard to mutuality. Lower class mothers spend less time in face to face mutual vocalization and smiling with their infants; they do not reward the child's maturational progress; and they do not enter into long periods of play with the child.

Ainsworth (1963) ascribes a failure of several infants to develop discriminatory social responses to a failure in reciprocity. The problem was not so much that the children were not given motherly care, but that they were given so little opportunity to terminate their own attachment responses, being kept in crib or carriage, ignored when they cried, and unable even to follow a social object with their eyes. Dyk and Witkin (1965) note the same thing with children who tended not to become differentiated: more differentiated boys tell stories on the Thematic Apperception Test in which parents are supportive; less differentiated boys describe arbitrary, inflexible parents (i.e., those who are not inclined to engage in mutually fulfilling interaction).

The reciprocity element of action extends to the child's relations to things. The child is encouraged to relate in action to things by being urged or forced to take into account the inner nature of the things to which he is relating. In dealing with severely disturbed children, for example, Doernberg et al. (1969) have their teachers allow children to relate to things only in appropriate ways. They put materials on the table, for instance, and require the child to be seated before he can touch the crayons. They restrict the use of crayons only to paper and remove the materials from the table and from the child if he leaves the chair, draws on the table, eats the crayons, etc. They react calmly to the tantrums that arise, and remove the materials if the child cannot accept the limitations, if he cannot relate to materials correctly.

Kounin (1968) proposes to emphasize the appropriateness of the child's behavior in respect to the tasks and people in the school setting. The reciprocity issue seems basic to his approach.

A major issue in the developmental literature is partially subsumed under the attention to action as a binding of the child to objects in the world. We take the child to be living and developing through action. We take action to involve mutuality between the child and others. Thus, we cannot adopt a simple maturational view of development, as was once the custom, because maturation implies that *reciprocal* interactions are not essential to development. Similarly, we cannot adopt the view that the child is infinitely malleable, since in the mutuality that exists for the child to be influenced by his social world, the child comes with his own predispositions, predilections, readinesses, etc. Piaget has been most forceful and effective in adopting this orientation, as was Freud, and a number of writers lean upon Piaget or Freud in developing the argument.

Kohlberg (1968) remarks that Piaget rejects both the maturational and learning views and adopts a cognitive-developmental position that emphasizes organism-environment interaction. This cognitive-developmental interactionist view suggests that cognitive and affective structures are natural emergents from the concrete interactions of the child and the environment under conditions where such interaction is allowed or fostered. Elkind (1969) asserts that for Piaget the question is not how much nature and nurture contribute to mental ability, but rather the extent to which various mental processes become relatively autonomous from environmental and instinctual influences through successful actions. Those processes which show the greatest independence from dominating environmental or instinctual regulation, the rational processes, are the most advanced of all human abilities. It is for this reason that Piaget reserves for them alone the term intelligence. White et al. (1964) also rely upon Piaget. Intelligence is considered to be the capacity of the child to structure internally the results of his own actions. Interaction with the environment gives rise to schemas, which in turn alter the way the child perceives and responds to the environment. Without the aliment of the environment, the schemas do not grow; without the schemas, the environment cannot be structured.

DesLauriers and Carlson (1969) quote Escalona to this general view: "The question as to whether infantile autism is 'due to' inadequate mothering, or 'due to' inborn deficit loses its significance. It is a result of lack in experiences which may come about through extreme variations in either intrinsic or extrinsic determinants or both . . . It (infantile autism) is caused by the absence of those vital experiences in early childhood which we regard as the necessary condition for ego synthesis."

Uzgiris (1967) says that there is a definite order in the acquisition of schemas for relating to objects. This order develops from the child's experience with objects, not simply from maturation. Dennis (1960) seems to concur. He argues that maturation alone cannot account for motor development. Retardation in such development is often due to absence of specific kinds of learning opportunities.

In respect to language development we find the nearest approach to reliance on a theory of maturation. Lenneberg (1967) asks why children around the world normally begin to speak between their eighteenth and twenty-eighth months. He believes that the onset of language is regulated by maturational processes. But he notes clearly that such social phenomena as language development come about by the spontaneous adaptation of the behavior of the growing individual to the behavior of other individuals around him (i.e., by reciprocal interaction). Nature and nurture, he claims, cannot be a dichotomy of factors but only an interaction of factors. Where else can such an interaction of factors take place than in the actions of the child which put him into mutual regulation with others? Lenneberg's view with respect to language is paralleled by White and Held (1967) in connection with the onset of hand regard and visually-directed reaching and the growth of visual attentiveness. All of these are believed to be significantly affected by environmental modification.

Psychological styles and disturbances are considered to be a function not of maturation or of learning, but of the interplay between inner and outer forces through experiences and actions. Fish et al. (1965) wrote on prediction of schizophrenia and made the point that a child's ultimate personality organization depends upon how his own unique biological pattern of assets and impairments interacts with his particular environment. Murphy et al. (1962) refer to three kinds of development of coping styles, depending upon the interplay between constitutional and social factors. One kind concerns the dominance of constitutional tendencies which were either never met or which won out over severe pressures from the environment. A second kind emerges from constitutional and environmental influences going in the same direction. A third kind is formed in reaction to strong dominance of environmental influences.

None of the writers was willing to argue that maturation rather than reciprocal interactions between parent and child is the key to growth and development. Maturation is meaningless except insofar as that which becomes structurally ready enters into the child's creation of actions or embeddedness in actions. Thus, while these theorists will not equate maturation with development, many of them document or assert that structural, constitutional forces are critical to development. These forces are essential precisely because they make the construction of mutually regulated actions more or less difficult or easy. The binding of the child to objects is hard under certain given constitutional conditions. Thus, some children, because they are temperamentally or constitutionally formed in one way or another, will have trouble engaging in actions, and they will consequently have difficulty in developing.

Conversely, infants and children are generally pre-tuned to bind themselves to other people. Evolution has prepared for this. Children are not equally attentive to all stimuli in the world; they are not without temperament and preferences. Several authors, reported by White and Castle (1964), conclude that early tactile stimulation appears necessary for normal human development. The infant is programmed for such tactile stimulation and if he does not receive it, he will not develop normally. This is a constitutional factor. Similarly, as Birns et al. (1965) demonstrate, neonates are geared toward certain stimuli as naturally soothing to them. Thus, auditory stimulation can soothe human neonates; and low tones are more effective than high tones. The infant prepared for low tones may find a mother with high tonal quality to her voice hard to meet.

Fantz (1965) has completed a series of investigations which show that children have distinct preferences right from birth for certain kinds of stimuli. There are such preferences as desire to look at patterns rather than plain figures. He makes much of the fact that the ontogeny of perception depends upon the biases created by these preferences and the looking that is derived from them. Kagan (in McCall and Kagan, 1967, and Kagan, 1968) has been showing that very young children pay much more attention to human faces than to plain figures, and the closer a picture comes to representing a human face, the more likely is the child to direct sustained attention to that figure. The child comes into the world ready to bind himself to others, especially to other people. Scarr (1968) remarks that stimulation delivered by another human being will relieve distress more quickly than similar stimulation delivered in a non-social context.

The many persons influenced by Chomsky in recent years have taken up the subject of language in the same perspective of a pre-tuning coming from evolution. Lenneberg (1967) is perhaps most thorough and definitive in this regard. He says that language is best regarded as a peculiar adaptation of a very universal physiological process to a species specific ethological function, namely, communication among members of our species. The foundations of language are to be found in the physical nature of man, in his anatomy and physiology. Between the ages of two and three years, language emerges by an interaction of maturation and self-programmed learning. Bever et al. (1965) deny Braine's theory that language is fundamentally acquired by learning and responding to examples in the environment. The underlying structures of language derive from the structures of the child, not from the language that is spoken to him or around him. Development of language comes through interactions; the possession of language structures that can be developed derives from constitutional factors. Odom et al. (1968) accept this view, but make the point that for a child to comprehend and use a particular language, it is essential that it be modeled for him. The debate between the Chomsky adherents and the learning theorists on language acquisition contains in large proportion the debate on whether the child is pre-tuned constitutionally for certain means of binding himself to others and whether such pre-tuning contains the underlying structural principles basic to language.

Problems arise when the pre-tuning of the infant puts him at the outer limits of the human range. Children vary considerably in their constitutional and temperamental conditions. Bridger (1961) identified different readinesses to habituate in their sensory systems. Some babies respond to most of the stimuli presented to them and habituate quickly. Some respond to most stimuli and do not habituate at all. Others respond to few stimuli and either habituate quickly or not at all. With given parents, any of these tendencies might make it hard to create mutually fulfilling actions. This would be especially true for children who respond to many stimuli and find it hard to habituate to them.

Thomas, Chess, and Birch (1968) make this pre-tuning the center of their work. As one illustration, they identified difficult children as "mother killers." These children show a combination of temperamental traits that includes irregularity, nonadaptability, withdrawal responses, and a predominance of a negative mood with high intensity. These children are not necessarily non-adaptive, although they find it hard to come to terms with new demands. They are slow adapters who make extra demands on their parents. If the parents can transcend the demands of the child, and create productive interactions in spite of them, the child is less likely to develop behavior disorders. Fish (1959) identified this, too, with a schizophrenic child who could be identified early as a child likely to have trouble. The child showed disturbed regulation of physiological patterns and an uneven pattern of growth, which was evident in such things as muscle tone, activity level, sleep patterns, etc. It was hard for the child to construct actions that would bind him to others. Witkin et al. (1962) report the same observation. They note that the problem of channelization of impulses in social interaction was a problem for children with a high level of energy combined with jerky modes of release. Schopler (1965), DesLauriers and Carlson (1969), and Ornitz (1967) relate autism to difficulty in creating actions that bind caused by internal, constitutional defects. Schopler, for example, points to the autistic infant's failure to assume an anticipatory posture before being picked up. Ornitz concentrates on the repetitive activity of the autistic child, that activity which ignores other people, which binds the child to no one, and which, Ornitz thinks, comes in response to an internal state which may not depend at all on the environment for its origins. Mahler (1968) believes that it is often the existence of a constitutional defect in the child that helps create the vicious cycle of a pathogenic mother-child relationship.

The problem of the relation of intelligence to genetics is a special case of this issue that the child is pre-tuned toward binding with objects through action. The question is how broadly or how finely the child is pre-tuned. Hunt (1969) attacks Jensen as arguing for a "predetermined development" of intelligence, for a maturational unfolding of constitutional conditions. He relates the constitutional elements of intellectual activity to what Dobzhansky has termed the "range of reaction," and says that such a pre-formed readiness is probably of greater range in a given individual for intelligence than for many other characteristics, which depend less upon what he suspects are the cumulative effects of successive adaptations. The development of intelligence is in substantial degree a function of the cumulative effects of informational and intentional interaction with physical and social circumstances. Jensen (1969) does not disagree. He says that intelligence is a phenotype, not a genotype (i.e., it is the result of genetic mechanisms and all the physical influences and social influences thereafter up to the time of measurement). Yet, having said this, he goes on to assert that it is not an unreasonable hypothesis from all evidence taken together that genetic factors are implicated in average Negro-white intelligence differences. He has assumed in this that there has been similarity in the two groups in the construction of actions that bind the children to their caretakers. That is, the genetics or constitution are assumed to have been decisive in relation to actions, an assumption that we suggested earlier neglects the reciprocity entailed in actions. Without going over the whole debate, we can start from Bloom's (1964) assertion that an individual is born with a nervous system and physiological make-up which are the bases in which general intelligence is developed. This make-up takes on meaning, however, only when the growing individual is engaged in living, in transactions with the world. (This, of course, is a major point developed by Piaget.) Careful specification of how the constitution affects the creation of all actions is necessary before any useful conclusions on the relation of genetics to intelligence can be drawn. Intelligence does not maturate apart from the binding of the child to the world any more than does language, perception, cognition, etc., and to argue around such a possibility is to distract from the study of the real growth and development of whatever intelligence might be.

This orientation that action involves a binding of the organism to the environment enters into recent criticisms of classifications of child-rearing and child-rearing milieux. Burton et al. (1961) caution against referring to "permissive" or "severe" child-rearing practices because permissiveness or severity on the part of the parent or caretaker cannot be judged independently of the concrete relation to the child. Permissiveness is less an interactional concept than a statement of personal orientation on the part of the parent. J. Gewirtz (1968) and H. Gewirtz (1968) make the point that deprivation must also be seen in concrete relation to the child. J. Gewirtz, for example, denies the utility of such conceptions as environmental wealth or deficiency since they have emphasized the availability to the child of stimulation but they have not taken account of whether the available stimuli can be functional for the child's behavior. Robson (1967) notes that what is lacking in many institutions is not contact between caretaker and infant but caretaking behavior that is contingent upon the baby's signals. He specifies three dimensions of such contingency, two of which rely heavily upon the theme that action binds the infant to the environment. The mother's responses should follow the infant's signals within a period of time that is sufficiently short for him to associate his behaviors with her actions; and the mother's responses must meet the infant's needs.

Finally, the faults in conditioning and learning theory in respect to development, just as the faults in the maturational thesis, are documented in the writings and can be related to the fact that conditioning theories often do not reckon sufficiently with the mutuality or reciprocity between the object to be conditioned and the agent of such conditioning efforts. Brackbill et al. (1968), for example, demonstrate that one determinant of conditioning parameters would seem to be the type of nervous system involved. They note further that not all responses an infant can make can be conditioned to a stimulus that he can perceive. There must be some reciprocity between conditioning effort and tendencies of the organism. Fitzgerald (1967) pursues the same theme. He asserts that the infant has good vision by four days of age, but it is possible to produce a stable conditioned response only at three months when a visual stimulus is used as conditioned stimulus and the response to be conditioned is a motor one.

He suggests further that there may be considerable differences during infancy in conditionability of autonomic and skeletal responses.

Shipley et al. (1969), Golden and Birns (1968), Gardner (1967) and Hershenson (1967) defend the learning theory or environmentalist approach in respect to language acquisition and the development of perception of form, but they accommodate to the criticisms which insist that anything to be learned must rely upon the capacities of the organism. That is, that which is learned must be already potential in the child. The child is not pawn or reactor, not a passive receptacle.

Given the adherence to a view of the reciprocity of mother and child through action, it is not surprising that several authors should emphasize the effects of the child on the mother and the effects of the mother's independent existence or personal problems on the child. Anna Freud (1965) cautions that the analyst must not confuse the effect of the child's abnormality on the mother with the mother's pathogenic influence on the child. This is easily done, she says, especially with autistic children. We have already referred to the Thomas et al. (1968) description of "mother killers." Caldwell (1967) refers to Pavenstedt and Wortis as well as her own work to describe how the low income mother is overwhelmed with feelings of depression and inadequacy so that she has trouble creating mutually fulfilling relations with her children. Doernberg et al. (1969) encourage the parents of the severely disturbed children they teach to stop treating themselves poorly so that they can allow themselves to engage in more productive relations with their children. And Fineman (1962) showed that children with much imaginative play had mothers who were free to deal with their own fantasy life and to bring it and the child's imagination into their relationship. Mothers seem able to tolerate the fantasy play of their children only if they can accept and in some degree explore with their children their own fantasy life. These children who used much imaginative play were able to construct more productive reality activities as well.

From all of this material on action as a binding of the organism to the environment in reciprocal interplay comes a very significant insight and a very demanding problem for those concerned with the provision of proper care for infants and young children. The children grow through these binding actions, so that it is necessary to enable them to participate in mutually created circumstances. This calls for great individuation of care, given the constitutional differences between children. One cannot provide average care for children and expect to promote good growth and development and great cognitive achievement. One must provide for the child to thrive in a world of others who will enter into many individualized reciprocal exchanges that are mutually rewarding. To do this, the others must have time available, have an interest in being with the children, be relieved from distracting tasks, such as too many other children to take care of or too many problems in life to solve. As we will see, the ratio of caretakers to young children is necessarily quite restricted if effective care is to be rendered. This is made so by the fact that each child must be dealt with actively and individually, spontaneously and yet in connection with known constitutional and other predispositional factors. In no other way can the reciprocity entailed in binding the organism to the environment be carried to fruition.

Playfulness and Pleasure in Action Are Essential to Growth

It is common agreement in the field that growth, development, health, and high levels of cognitive and affective functioning in children are all associated with continuous, on-going participation in actions and interactions that are full of pleasure and playfulness. There are no proponents of the stiff upperlip school of thought in respect to positive developmental processes. Stoicism, the inculcation of moral codes, the emphasis on humorless acquisition of mores and the technology of the society, all are absent from the scene when positive development is under consideration. If parents and children have fun together, if caretakers and infants, laugh, play at words, satisfy each other, act in an animated and joyful way, glory in their mutual liveliness, the infants and children will grow into intelligent, happy, searching, curious, creative human beings. If the parents are depressed, ritualistic, proper but not happily engaged, sincere but not vivid, there will be noticeable deficits.

Murphy and her collaborators (1962) stress this element. They point out that children behave as if much of what they do is done chiefly because it is exciting, gratifying, or fun. The child who has had a wide range of pleasure resources can more easily find or accept a substitute when frustrated, so that lots of past pleasures enable him to create lots of new pleasures. Because he can also tolerate frustration, he is not given to submission to fate, but seeks anew pleasures in the face of frustration. Murphy sees aggression only in children who are continually frustrated, and in this she ties pleasure to more pleasure, dissatisfaction to more dissatisfaction.

Anna Freud (1965) argues that the child's own inclinations in respect to such things as sleep, feeding, elimination, and wish for company must be met by the mother if the child is to grow. When the mother understands, respects and satisfies the child's wishes as far as possible, there are good chances that the child's ego will show equal tolerance. Where she unnecessarily delays, denies and disregards wish-fulfillment, the child is likely to develop hostility towards his impulses, the readiness for internal conflict that is a prerequisite for neurotic development.

DesLauriers and Carlson (1969) assert this position, too. They suggest that the pleasure accompanying sensory experiences which the child obtains in actively engaging himself with parts of his own body or people in the environment, influences the child's behavior in seeking further pleasure. They are eloquent in stating that the normal child (and the autistic child) must have the affective human quality of pleasurable satisfaction at being a human surrounded by humans, and of being welcomed into the world, if he is to grow properly. Only a human presence can provide for the child those stimulating sensory and affective forms of behavior which are specifically human; no non-human presence can do this.

Caldwell and Richmond (1968) list a number of factors helpful in the development of the young child. They include the idea that growth is fostered by an optimal level of need gratification. Sufficiently prompt attention to needs, so that the young organism is not overwhelmed, is important. A positive emotional climate in which the child learns to trust others and himself is important. A minimum number of restrictions is also very helpful. Elsewhere these two authors (1967) argue that better motor development is associated with a parental style that is permissive-accepting rather than rigid-rejecting. And they again emphasize that positive maternal affect represents a meaningful component of the stimulus potential of the home.

Ainsworth (1963) summarizes the general issue well when she notes that infants with mothers who spend the most time with them, who are most interested in the details of their behavior and development, and who enjoy such things as breast-feeding their children, are those infants who seem most likely to develop a set to explore and live in the world around them.

A feature of development that is seen as being especially influenced by pleasure and playfulness is the socialization of the child. The notion here is not that the child is unsocialized and must be tamed through pleasurable experiences, but that he is social from infancy and elaborates and refines his socialization through satisfying experiences. Much as language is not thought to be inculcated in an empty organism, but unfolded and differentiated, so too with socialization, and this process is best implemented in the context of happy actions.

Wenar (1964) raises the possibility, for example, that emotional attachments to the mother may depend upon the fact that the mother is the child's favorite toy.

Mahler (1968), and Pine and Furer (1963) note that the child's separation from his mother and integration into new social situations depends upon his pleasurable embeddedness in relations with his mother. If he can rely upon her for the satisfaction of his needs, he can risk going forward into the world and he can develop his capacities. He then finds pleasure in functioning separately from his mother and overcomes whatever separation anxiety that might be called forth. In contrast to traumatic separation, say Pine and Furer, this process takes place in the setting of developmental readiness for and pleasure in independent functioning made possible by the continual libidinal availability of the mother.

Rheingold's (1956) classic demonstration in an institution showed that greater social responsiveness (such as smiling) derived from more caretaking, more engagement in pleasurable situations.

Mussen and Rutherford (1963), and Mussen and Distler (1960) relate the development of masculinity and femininity in children, that is, their socialization into sex roles, to the experiences the children have had with nurturing, affectionate, rewarding fathers and mothers. The reward element is strong, too, in the theses developed by Grusec and Mischel (1966), and Mischel and Grusec (1966), in respect to a child's reactions to models. Children tend to adopt or imitate or try out aspects of a model's behavior when that model has been seen to receive reward.

An alternate way of supporting the requisite of enjoyment for growth is the argument that lack of enjoyment results in a slowdown of development. Wolff (1966) observes that monotonous stimulation lowers the infant's activity level and eventually induces a state analagous to restful sleep. Brodbeck and Irwin (1946) demonstrate that babies under six months of age who live in an unstimulating orphanage environment are often retarded in frequency of vocalizations and number and types of sounds. Kagan (in Pines, 1969) is concerned that we too often teach the child helplessness and passivity by not allowing him to live in a setting in which what he does has influence on the world and helps create pleasant outcomes. For instance, middle class white children are often surprised by their parents and this helps provide distinctive, fun-like stimulation. Lower class children are not provided with such distinctiveness in stimulation, and have a more bland environment in this respect. Stechler and Carpenter (1967) conclude that chronic deprivation of stimulation reduces the appetite for stimulation and reduces the adaptation level of children. White, Castle, and Held (1964) see the early onset of hand watching in institutionalized children as a function of lack in respect to alternative visual objects in the field that might give them pleasure. Bland environments lead to earlier, but not necessarily more pleasant or growth-producing, hand watching.

Another alternate approach to understanding the intimate tie between pleasure and development consists in relating retardation of growth to the experience of unpleasure. Marans, Meers, and Huntington (1968) postulate that the child-rearing patterns to which the slum child is exposed is largely responsible for the kinds of cognitive and emotional handicaps that are reflected on tests and in school performance. They believe the problems start in the first months and years of life. They propose to prevent the onset of such handicaps by encouraging the child's delight in exploration and mastery, and by overcoming the stresses that dampen the child's engagement with the world. Jensen (1969) recognizes that extremely negative environments diminish intelligence dramatically, up to 60 or 70 points worth on IQ tests. Elkind (1969) adds that the "intellectually burned" child is someone who refuses to become totally involved in intellectual activities because the repeated frustration of being interrupted in the middle is just too much to bear. He goes on to say that the educational practice which would best foster intrinsically motivated children would provide for the interests (i.e., the natural pleasure) of the children. Aronfreed (1964) notes that the children of extreme parental groups who are highly rejecting or punitive toward their offspring, appear to show poor internalization in their social behavior. Thus, the socialization of these children is negatively affected. Baughman and Dahlstrom (1968) found that Negro mothers were more nearly unanimous in endorsing the value of whippings and value much less than white mothers the use of praise. Negro parents in their study seemed to be especially concerned to receive immediate obedience from their children and to be intolerant of self-assertiveness on the part of the children. A consequence is that the Negro child seems to be less socialized than the white, he fights more, talks too much, tells more lies, is messy. That is, when Negro parents are devoid of playfulness and an orientation to pleasure, their children are less socialized. Finally, Elmer (1967), and Elmer and Gregg (1967) show dramatically the influence of painful experiences on the retardation of development. They studied abused children and found that 50 percent of the abused group was mentally retarded and only a few of the children gave promise of becoming self-sufficient adults. Only two of the 20 children were normal in all areas considered. Those who were not mentally retarded were well below average on IQ tests.

If one takes the position that satisfying actions are necessary to the development of infants and small children, and that children are programmed toward these satisfying circumstances, then it follows that poor developmental conditions actively turn infants and children away from life. It is not the failure to create social life out of mere animal existence that is entailed in poor developmental situations; it is an active disruption of an on-going social life. Similarly, it is not the promotion of dissocial or anti-social behavior that is natural to children and that must be shaped out of their behavior repertory. Rather, it is that dissocial and anti-social behavior is actively constructed in parent-child relations and constitutes an encroachment upon or distortion of the natural developmental tendencies of the child. Poor child-rearing is an active negation, like a post-natal abortion. Klaus and Gray (1968) discuss this. They note that in the case of disadvantaged children, the mothers, in adult-child relations, reward behaviors that leave them alone rather than exploratory behavior. Greenberg (1962) saw this in infants reared in a nursery rather than in a home. By two months of age the nursery group was easier to soothe, easier to turn off, by all three modes that he applied. They seemed more ready to live less of a life. Walters (1967) found a difference in motor development between lower and higher socioeconomic groups of Negroes that can be interpreted to sustain this thesis.

Stereotypy, found in mongoloids (Wolff, 1967b), the play of autistic children (Tilton and Ottinger, 1964; DeMyer et al., 1967), and in children who have failed on tasks (Bruner et al., 1966), is a reflection of this active disengagement from the world that is cultivated either by extremely poor social relations or extremely deviant constitutional conditions. Stereotypy is a sign of resigned divorcement from social life. Wolff (1967b) suggests that mannerisms are tied directly to social deprivation.

Pleasure and playfulness are central not only to normal growth, but equally to the reversal or correction of abnormality. The treatment of early infantile autism that is described by DesLauriers and Carlson (1969) is founded upon adoption by the therapists and by the parents and teachers of an attitude of play, excitement, animation, fun, and delight. Affective arousal in the context of pleasure is crucial to their treatment. Similarly, Colby's (1968, 1969) use of the computer with autistic children is founded upon the observation that children who are autistic often demonstrate that they enjoy playing with material things. They find pleasure in doing things with the computer, and it is through this pleasure that they are prompted to show curiosity about reading, listening, speaking, and writing. The child is allowed and encouaged to play with language in a form that seems to be intrinsically satisfying to him. Schopler relies, too, upon that which the child finds pleasurable. His main emphasis in human relatedness in respect to autistic children is to develop social attachments that are based on positive and pleasurable experience. He engages in negative acts only as a last resort. He expects to build on the child's ever-present potentiality for enjoying mastery. Lovaas et al. (1965) do not adhere directly to this theme, but they do find that affectionate and other social behaviors toward adults increased after the adults had been associated with shock reduction. The pleasure of relief from pain seems to be their operative factor.

In educational settings, as well as in therapeutic settings, the same theme has been sounded. Allen et al. (1964) have experimented with reinforcement (i.e., creation of pleasure for the child) in increasing social interactions of an inhibited young girl. A positive reinforcer such as teacher attention, smiling, etc., was given when the child interacted. It was withheld when the child engaged in solitary play, or when she attempted interaction solely with an adult. She came to interact with her peers more, fell back into her old habits when the reinforcements were omitted, and renewed social interaction when they were re-introduced. Gordon (1969) is instructing parents to help in the education of their children as a means for influencing cognitive and affective development. He is encouraging them to adopt an attitude toward engaging in educational tasks as if they are play for the child and for the parent as well. The influence of this play attitude is seen in enhanced cognitive development.

As a last item in this area of pleasure, we may refer in passing to the studies on the fun in the earliest days. Ottinger (1966) and Ottinger and Simmons (1964) relate a child's crying to the mother's pleasure in having the child. Bernard (1968) identifies this factor also.

This topic is probably more profound and more important to development than is generally recognized. On the one hand, its centrality to growth and development has been underestimated, despite the fact that there is a wide spread assumption that play and pleasure are requisites. For example, people in the field speak about institutions other than the family home in terms of amount of stimulation or the fact of separation, but much less about them as cheerless, formal, bureaucratic, routinized, austere settings; places where it is uncommon to find play in abundance in respect to all aspects of the infant's existence. Similarly, writers refer to permissiveness, to nurturance, and to love when they characterize emotional and social climates in families, but they seldom concentrate their attention upon zest, animation, and liveliness as definitive elements in optimum developmental environments. These elements are confined to more specific analyses of treatment or growth.

On the other hand, there is probably much more resistance to the implementation of a series of environments that have playfulness and satisfaction as central ingredients than most professionals recognize. Close attention will show, we suspect, that proposals to institute broad programs that key on pleasure, in contrast to keying on health or education-as-work-through-the-acquistion-of-knowledge, would meet with stiff resistance. Only when pleasure is tied to other, more respectable motives, such as the overcoming of disadvantage, could a program include it as a primary component. Otherwise, it would smack of recreation, unnecessary luxury, frivolity. Yet it is clearly and consistently argued in these reports that play and gratification are the bases for all growth, health, emotional maturity, and cognitive functioning.

By no means is it argued that pleasure is separate from the "tasks" with which the child must deal. There is no separation of work and leisure, play and labor, for the infant and the child. The requirement that actions bind the child to others means that pleasure comes from the mutual experience (or with things, it comes from taking into consideration the nature of things to which the child relates). It is rather asserted that whatever the child does ought to have vitality in it if he is to grow in the most desirable fashion.

The Child Constructs Actions When the Environment Offers Stimulations within the Range of His Capacities

When the child is attempting to create actions that are based on his dealing with himself and dealing with the world at the same time, and that are based on efforts to bind himself to the people and things in his world in connection with satisfaction and pleasure, he is limited by the range of his capacities and by the fitness of the environmental stimulations to that range of capacities. The mutuality and reciprocity between child and caretaker can be achieved only when the nature of the child (his current capacities and interests) and the nature of the caretaker (his individuality and capacities) enter into the transactions. That is to say, there are structural constraints within which the transactions between child and world take place. If stimulations and challenges come within the range of capacities of the child, but do not always center upon sameness, the child will grow and develop. If the stimulations and challenges are beyond the capacities of the child, he will show signs of distress and disturbance, and if these are prolonged, he will develop profound troubles. In efforts to overcome disturbances from the past, therapists and teachers lay much emphasis upon starting where the child can respond, where the child is, and moving from there toward the construction of new capacities.

We start from the fact that the same stimulation has different meaning for different children, or for the same child at different times. Thomas et al. (1963), for example, found that characteristics of reactivity that could be identified very early in life were persistent features of the child's behavior throughout the first two years of life. They suggest that this finding of initial and persisting reactivity patterns implies that all infants will not respond in the same way to a given environmental influence. Birns et al. (1965) point out that the same form of stimulation may be either soothing or exciting, depending upon the state of arousal of the baby and the duration. Bridger and Reiser (1959) also promote the thesis that a response depends upon the pre-stimulus level of functioning of the child. They refer to Wilder's "law of initial values" which states that the magnitude of increase of physiologic changes decreases as the initial level increases, and that at high initial levels there are paradoxical decreases to the same stimulus. There are individual differences in receptivity to a stimulus and at different times the given individual has a different receptivity. Weisberg (1967) found this in his attempts to study accidental reinforcement control in infants.

Nowhere is there greater emphasis on the proper balance between the capacities of the child and the nature of the stimulation that confronts him than in recent discussions of the bases for cognitive growth. Piaget is the source and fountain of this discussion, and there is common agreement with the theme that he has developed. Cognitive development, according to Piaget, proceeds through the experience of discrepancies between the assimilation processes and the accommodation processes, and the successful reconciliation of these discrepancies. Kohlberg (1968) refers to the optimal balance of discrepancy and match between the behavior structures of the child and the structure of his psychological environment. Hunt (1967) uses the idea in respect to cognitive growth and in respect to motivation in general. He says that there is an optimum of incongruity between the incoming information and the standards held by the organism that are based on information already coded and stored within the cerebrum. Too little incongruity probably produces boredom; too much incongruity produces emotional stress; just the right amount of incongruity produces the motivation underlying intellectual growth and much behavior in general. Caldwell and Richmond (1968) follow Piaget and suggest that development is fostered by the introduction of new experiences that provide an appropriate match for the child's current level of cognitive orientation. Learning experiences cannot remain at the same level but they cannot be too advanced either. Development is also fostered by the provision of rich and varied, but interpretable, cultural experiences since these will fit within the child's range, but will enlarge it at the same time. Elkind (1969) notes that intelligence is concerned precisely with the creation of balance between assimilative and accommodative processes. Intelligence involves the revision of schemata on the basis of new information and the interpretation of environmental intrusions upon the basis of the schemata that the person holds at the time. Intelligence differs from play and imitation in that it is concerned with this balance between assimilation and accommodation. Play is largely assimilative and imitation largely accommodative.

Kagan et al. (1966) suggest that one way to conceptualize cognitive growth is to regard classes of stimuli as falling along a continuum from the very familiar to the very novel. Infants will fixate on objects that represent recently formed schemata as well as moderate violations of these schemata. Their fixation times will be relatively low to stimuli that are very familiar and very novel. Charlesworth (1966) concludes that stimulus conditions with high uncertainty are more effective in eliciting and maintaining orienting and attending behavior than conditions of low uncertainty. Hunt (1965) reports that Charlesworth showed that children repeat a "game" resulting in a surprising outcome more than one that produces an expected outcome, and he includes Munsinger and Kessen's showing that there is an optimum of uncertainty and complexity in figures that young children attend to. McCall and Kagan (1967) view the control of infant attention from the perspective of an interaction between stimulus properties and acquired cognitive structure. Their data offer marginal support for the proposition that stimuli that bear a moderate relation to some acquired schema or reference will recruit the most sustained attention from four-month-old infants. (These are studies in attention to pictures of more or less complete faces.) Wolff (1966) points also to surprise as a positive ingredient in attention, discovery, development, and pleasure. In his thorough study of smiling in infants, he found that the element common to diverse conditions for smiling was the element of surprise. Various forms of surprise lead to smiling and other forms to the startle response. Those within the range of capacites of the child lead to the smiling and those at the outer edge or beyond it lead to the startle. Blank and Altman (1968) conclude that when visual stimuli are too easy for children to learn, the stimuli will not help their thinking and problem solving. It is only when the child is required to concentrate through the imposition of external demands that his performance improves.

In language development the fact has been observed by many that the child's speech is not a replica of the speech of the adults around him. He does not copy the whole structure of adult speech. Part of this is attributed by such theorists as Brown and Fraser (1964), and Shipley et al. (1969), as being determined by the upper limits to the child's immediate memory span and his programming span.

The child is not simply responding to stimulations in his environment. He is also regulating his intake of stimulation and he is regulating what stimulations happen around him. This self-dosing of stimulation insures that what comes in will fit to some degree within his capacities. Hunt (1967) notes that only the individual himself can choose the kinds of inputs that will provide him with that optimum of incongruity that is so essential to intellectual growth. Held and Hein (1963) refer to the self-produced feedback which is vital to the analysis of the external world. Their findings in regard to visually guided behavior provide evidence they consider convincing for a developmental process which requires for its operation stimulus variation systematically dependent upon self-produced movement. Murphy et al. (1962) remark that the children they studied indicated (by naive surprise in respect to difficult IQ tests) that the home demands of these normal children were usually well within their scope. They believe that the children had been permitted to protest or deal actively with situations in other ways when excessive demands were made upon them. That is, the children participated in creating the stimulus inputs that they received. Frantz (1965) in referring to the ontogeny of perception sees the child regulating the inputs that are correlated with his preferences. There is a biased exposure to preferred features which is essential in the building of cell assemblies.

A theoretical issue of great significance is contained in this line of thought. The question arises as to whether it is the fact of discrepancy or incongruity that promotes the growth of the child, or the fact that a discrepancy is operative that the child successfully resolves which promotes the growth. If the emphasis falls upon the idea of incongruity in and of itself, we have the theory that conflict and frustration are the motors of development. If the emphasis is upon the fruitful dealing with discrepancies (i.e., overcoming incongruity), then we have the theory that satisfaction and fulfillment are the generators of development.

If the demands of the world and the stimulations that are imposed upon the child are beyond his range of capacities, the result is disturbance and distress in the child, or, if the child is permitted, the avoidance of the stimulation. Greenberg (1964) showed that head rolling in children as a symptom is probably a response to being understimulated or overstimulated about the face by the mothers. Ornitz (1967) and Ornitz and Ritvo (1968) suggest that many of the abnormal motor activities in autistic children during the first year of life may be associated with a heightened sensitivity to the intensity and novelty of external stimulation in all sensory modalities. These children seem to be disturbed by the introduction of rough as opposed to strained foods, loud or sudden noises, sudden changes in illumination, sudden changes in spatial position. Their heightened sensitivity causes them to turn away from contact with the world and to provide their own inputs. DesLauriers and Carlson (1969) reason differently. They believe that autistic children have adequate sensory apparatus at the periphery but have deficits in the central organizing mechanisms. For them the condition of early infantile autism presents a situation in which a child appears so isolated and indifferent to the world that much of his behavior could be viewed as a consequence of sensory restriction. They note that those sensory experiences which do reach the child and do display some degree of integration, organization and memory are all associated with high stimulus strength, either from excessive repetition or because they are characterized by the impact of an unusually strong affective or emotional climate. Normal reactions to this kind of child tend to be outside the range of his capacities. Special affective arousal conditions are called for to help the child experience actions that are meaningful and pleasurable to him.

Thomas et al. (1968) say they have found it useful to consider specific types of stressful interactions and dissonances within the framework provided by the evolutionary concept of "goodness of fit" developed by L. J. Henderson. This concept implies that the adequacy or inadequacy of an organism's functioning is dependent upon the degree to which the properties of the environment are in accord with the organism's own characteristics and style of behaving. They delineate six types of dissonance that appear in the development of disturbed functioning in clinical cases. These include: 1) dissonance between parental practices or demands and the child's temperament or capacities; 2) dissonance between values and behaviors developed in home and behavioral expectancies at school and in peer groups; 3) inconsistencies in patterning of parental practices; 4) involvement of child in interparental dissonance; 5) dissonance between child's expectations of acceptance and affection and parental feelings and behavior; and 6) dissonance between mode of functioning of teacher and characteristics of the child.

In cognitive as well as emotional distress the impingement beyond capacities of child is recorded by the writers. Jensen (1969) suggests that schools have failed to adapt their educational programs to the kinds of thought and cognitive processes that are within the capacities and interests of the so-called disadvantaged children. Baratz (1969) argues that if Negro dialect were taught to the Negro children, they would show considerably less intellectual deficit than is now considered typical. Their poor performance is determined by the fact that the demands upon them are put in a language that is foreign to them. In this respect Stewart has noted that one must apply such teaching only to Negro children who are accustomed to this dialect, a matter which must be judged before one tries to use dialect in teaching. Bruner et al. (1966) show how four-year-old children give stereotyped responses to blurred pictures and only respond easily and without these signs of distress when the picture becomes clear. Five-year-old children, on the other hand, are much more flexible in response to the same blurred pictures. The task is more within the range of their capacities. Weisberg and Fink (1966) found two-year-old children who were capable of dealing with a lever-pressing task with little difficulty in the first place also had the most stable performances and highest response rates, whereas the other children were more variable and inconsistent.

Normal cognitive and emotional growth depend upon a match between the child's capacities and the challenges presented to him from the environment. There must be sufficient congruence to allow the child to master his world; there must be sufficient incongruence to allow the child to be interested in mastering the world. Abnormal cognitive and emotional development derive from a mismatch between the child's capacities and the challenges presented to him. It follows from this that the correction of abnormality, whether in respect to psychological disturbance of an emotional or cognitive type, will depend upon the creation of new matches between the child and the world. The major discussions of therapeutic work with severely disturbed children, those by DesLauriers and Carlson (1969), Fenichel (1965), Schopler (1965), and Wolff (1967a) make this point over and over again. It is akin to the old therapeutic adage, "Begin where the client is."

DesLauriers and Carlson (1969) use this perspective in a variety of contexts. For example, they note the difference between hyperactive and hypoactive autistic children. For both kinds of autistic children there is a problem of affective arousal and the therapist must find a way of relating to the children so as to engage their affective apparatus in a way they can manage. For hyperactive children the therapist must not exceed normal levels of stimulation; for hypoactive children it is necessary to impose very high levels of stimulation. As another illustration of the same principle, they concerned themselves with building upon the constructions that the child developed himself. They took these repetitious constructions and tried to introduce variations on them.

Schopler (1965) refers with approval to Waal's use of body massage in the treatment of a three-year-old autistic child on the grounds that the therapist was relating to the child in terms of the near receptor of touch which the child was using as his dominant sensory reception of the world. He remarks in his application for support that children with psychotic impairments need specially structured interactions which take into account the child's limited forms of perceptual and cognitive access to the world. Fenichel's application for support says the same thing. All academic work with severely disturbed children must be highly personalized and timed to fit the interests, needs, specific preoccupations, and the life experiences of each child. A school for seriously disturbed children must provide a life space that is safe, predictable, stable, structured, and comfortable. It must be ordered so as not to be a stimulant to disorder and disorganization. It needs to be antiseptic, relaxing, or stimulating, depending on the pathology of the child.

Wolff (1967) *interprets the therapeutic work* of Bettelhelm, Kamp, and Bibace by the thesis that the therapist has entered into the apparently aimless self-sufficient stereotypy with the patient and has then converted the mannerism into a behavior that can be entrained on external synchronizers (e.g., music) or related to concrete events and persons in the environment.

Caldwell (1967) and Lane (1968) build their day care centers for disadvantaged and reasonably well off children on similar commitment to gearing environment to child's capacities. Caldwell shows that short-term separations of even very young children and their parents are not harmful, that is, not beyond the capacities of the children. Lane has toys in the nursery school that are familiar to the young children when they first come so that initiation into the center is not stressful.

As the Child Develops, His Actions Become More Complex

As the child devolps he is able to participate in actions that have an increasingly complex nature. Part of the added complexity stems from the fact that the child becomes less dominated by particular, prominent, but limited qualities of the stimulus situation. Part of the added complexity derives from the increasingly greater use of his distance receptors, receptors which allow greater analysis by the child of the external situation as a separate set of events. Part of the increased complexity comes from the added use of cognitive, conceptual, intellectual means for the organization of his actions.

Piaget has made much of the child's development from a state in which he is most responsive to dominating stimuli from the environment to a state in which the child is in more control of that to which he is attending. Kohlberg (1968) notes, for example, some of the stages as seen by Piaget. The infant at Stage 1 responds only to stimuli from the environment that are related to his own actions, which fit innate reflexes. At Stage 2 he responds to stimuli associated with reflexes but only if he sees them as caused by or associated with his own activity. At Stage 4 he becomes interested in new events he has not caused, while at Stage 5 he directly seeks to produce novel events. There is thus a progression of stimulation to which the child is sensitive. Elkind uses Piaget also. In Elkind et al. (1964) reference is made to Piaget's view that the perception of a child is "centered" in the sense that its organization is dominated by "field effects." With age and development of new mental structures, the perception of the child is progressively freed from its domination by field effects and becomes increasingly logical in form. An older child is able to differentiate elements of a configuration and can organize and reorganize around them. They confirm Piaget's reasoning in their study of whole-part perception. They demonstrated that when field effects favored perceiving part rather than whole, the younger aged children did perceive parts rather than wholes. This changed with age.

Witkin et al. (1962) have demonstrated that the immediate context in the field diminishes as the dominant determinant in perceptions. They note that functional rather than geometrical significance in the field becomes ever more central to the perceptual processes. Hershenson (1967) differentiates the looking of younger and older infants along these lines. He believes the evidence suggests that the newborn's visual behavior is determined by sensory input; the older infant is able to integrate such input and has more flexible relationships with the environment. There is a change from "obligatory attention" to an active searching which reflects a shift from control by the sensory mechanisms to mediation by the newly organized perceptual system.

The means by which the child moves from dominance by environmental cues to greater dominance by his own capacities is through the development of cognitive operations. As Gollin (1965) summarizes it, there is apparently a developmental progression from perceptual dependency upon stimulus properties to conceptual operations. Bruner and his colleagues have been very concerned with this aspect of development. Olson (in Bruner et al., 1966) speaks of the behavior of the preschool child as receptive or respondent to stimuli, while the behavior of the older child appears to be determined far more by the plans or hypotheses the child generates rather than by immediate stimuli. Bruner (1961b) relates this facet to "The Act of Discovery." He says that he does not restrict discovery to the act of finding out something that was before unknown to mankind, but rather includes all forms of obtaining knowledge for oneself by the use of one's own mind. Discovery, he suggests, favors the well-prepared mind. Much of the problem in leading a child to effective cognitive activity is to free him from the immediate control of environmental rewards and punishments. When a child becomes able to use success and failure not as immediate reward and punishment but as information, when the task is his own rather than a matter of matching environmental demands, he becomes his own paymaster. Seeking to gain further control over his environment, to make his actions more complex by taking into account more of the world around him, the child can come to treat success as an indication that he is on the right track. In the end, says Bruner, this development has the effect of freeing learning from immediate stimulus control. When behavior thus becomes more long-range and competence-oriented, it comes under the control of more complex structures, plans, and the like, and operates more from the inside out. He notes elsewhere that development includes a trend to increasingly go beyond the information given. This is done by conceptual means. He says that he proposes that when one goes beyond the information given, one does so by virtue of being able to place the present in a more generic coding system . . . which provides additional information either on the basis of learned contingent probabilities or learned principles of relating things.

A series of comments from Bruner and his associates (1966) will show how all important this topic is in their thinking on cognition. They refer to Lashley's arguments that in order for behavior to become more skillful it must become increasingly free of immediate or serial regulation by environmental stimuli operative while the behavior is going on. They refer to Gibson and Odom, and add their own comments to the listing in respect to perception in young children. Such perception is thought to be: 1) "stuck" or nontransformable; 2) "autistic" or subject to influences of affect; 3) diffuse in organization; 4) dynamic in the sense of being closely related to action; 5) concrete rather than schematic or abstracted; 6) egocentric in the sense of having a central reference to the child as observer; 7) marked by unsteady attention; 8) organized around a minimum of cues. They note that three-year-olds tend to be strongly guided by the perceptual nature of tasks and by a single perceptual feature at a time. As children grow, they take into account more perceptual features. There are two hallmarks of the young child's ideas. The child is apt to base his notions of the world on some feature he can point to and he is apt to focus on a single aspect of the stimulation at any given time. By four years of age, children can handle one-dimensional orderings but not two-dimensional orderings. By five years of age they can handle the latter.

There is a subtle matter concerned with this shift from dominance by immediate stimuli to more self-control over interests in the world, one that is pointed to by Block (1968). Bruner (and Kagan in respect to impulsivity versus reflectivity in cognitive styles) has a tendency to see that the influence of immediate stimuli diminishes as one develops cognitive control over or in behavior. This would imply that cognition tends to take the child out of the concrete existence in which he lives; that the ability to abstract in thought is also the tendency to become abstracted from direct involvement in the immediacy of life. But the truth is, of course, that we all live in fact in the immediate present. There is no way of actually taking oneself away from being in the world. The difference that is to be made, then, is not whether the infant lives in the immediate and the older child lives in the long run. Rather, the infant lives in terms of domination by important aspects of the immediate such that he cannot create complex structures that tie one moment to the next and into large units of experience.

Several particular issues come under this heading of a shift from control by the immediate situation to more conceptual participation in the creation of one's own behavior. Weir (1962) notes that the child's early vocabulary is concerned mainly with nearby environmental stimuli and only gradually lengthens to cover that which has taken place during the preceding day (in presleep conversations with himself) and then to more broad concerns. Suchman and Trabasso (1966) show that young children tend to prefer color and older children tend to prefer form in visual perception. Color is presumably more a press from the environment and less conceptual than form. Suchman (1966) did note that there are cultural factors here, since African children did not show a shift from color to form preference by the time of adolescence. But it is relevant to note that they showed color, not the later developing form preference. Jensen (1969) discusses the fact that preschool children have a developed capacity for associative learning which is well controlled by the stimuli from the environment, but that they have only rudimentary capacities for cognitive and conceptual functions at a higher level. These latter will have their most rapid change at five to seven years of age. He makes the distinction that associative learning ability is connected with learning rapidly something new and unfamiliar, right in the immediate moment, and he suggests that this domination by immediacy may be a handicap to the development of conceptual capacities. Gordon (1969) refers to the increasingly evident ability of children to figure things out for themselves, and this is related to the onset of conceptual capability.

Stevenson (1965), Stevenson and Weir (1965), and Weir (1968) demonstrate that the younger children are more responsive to social reinforcement in experimental situations than are older children, presumably because they are more dependent upon the nature of the immediate stimulation.

Jensen (1969), Schopler (1967), and Blank and Altman (1968) utilize the notion of cross-modal transfer as a sign of relatively mature conceptual functioning. Cross-modal transfer refers to the receipt of information from the world through the medium of one set of sensory apparatuses (e.g., touch) and the translation of that information into the medium of another set of sensory apparatuses (e.g., vision). Such cross-modal transfer illustrates well the general trend toward involvement in the immediate but at increasingly higher levels of conceptual understanding.

That which is found in disturbed children is presumed to be similar to that found in the younger children. Thus, Fenichel notes that severely disturbed children are constantly at the mercy of extraneous and irrelevant details. Environmental stimuli may have to be drastically reduced to handle this problem of the disturbed children being dominated by the environment. DesLauriers and Carlson (1969) argue similarly, noting that disturbed children are frequently attuned only to certain cues (more dominant ones) and have difficulty coming to terms with probable cues. Scarr notes that infants under six months of age will prefer proximal stimuli as comforters whereas infants over six months of age will inhibit distress more quickly to distance stimuli. And Walters and Parke (1965) relate social responsiveness and development to the increasing role of the distance receptors in the child's relation to the world. As parallel to these normal developments, Schopler (1965, 1966) relates early infantile autism to a reliance on proximal receptors. He showed that older normal children spend more visual time than tactual time on a task. And he showed that schizophrenic children showed less visual preference than same-aged normal children. The most striking increase in visual interest occurred between the ages of three and six years. Schopler makes the observation in this discussion that the near receptors are more geared to the immediate environment. He relates this to the work of Schachtel, Piaget, Werner, and many others.

Implicit in the preceding discussion concerning development and the increasing complexity of a child's actions is a theme on the relation between cognition and action. With the exception of two authors (Hunt, 1965, and Stechler and Carpenter, 1967), most writers on this subject matter construe cognition to be a component part of action rather than the dominating element of psychic life from which action flows. Piaget again sets the model that seems most akin to what is commonly accepted at this time. In the beginning of life action is dominant for the child and intelligence is essentially sensorimotor intelligence. Intellectual processes develop as the internalization of operations that were previously active in the child's adaptive interactions with his environment. Gradually, conceptual functioning has a role of its own, but again never completely separated from the adaptational considerations of the organism.

Hunt believes that "perception" *precedes* action and that early perceptual experience is necessary for the development of coordinated and visually directed behavior. Stechler and Carpenter distinguished between sensory-motor intelligence which is dependent upon actions, and sensory-affective intelligence which operates from very early in life and which is not dependent upon the sensory-motor sphere. They challenge the view of action as primary.

Bruner et al. (1966) foster the primacy of action with their classification of enactive representation (representation based on habitual patterns of action) as the original cognitive activities. They note, for instance, that in the closing months of the first year of life, the identification of objects seems to depend not so much on the nature of the objects encountered as on the actions evoked by these objects. Actions evoked by stimulus events seem to serve to "define" these events. Iconic and symbolic representations, which are higher cognitive forms, stem from these earlier action forms. Kohlberg (1968), Mahler (1968), and Wolff (1967) follow Piaget in this connection. Kohlberg, for example, emphasizes that the acquisition of conservation is contingent upon a background of general experiences. The logical understanding derives from transactions, not from teaching through words. The idea of constancy of an object, says Mahler in accord with Piaget, depends upon experiences on the disappearance and return of such objects. Wolff ties together Piaget's sensorimotor schema, Erikson's conception of organ modes, which are parts of the body and which determine the nature of the relation of the child to the world, and Werner's analysis that sensorimotor performances set the issues for the development of intellectual comparisons. Opening-closing are relations in action before they are conceptions that the child attains.

Cognition is a differentiated part of action that enables the child to create more complex and realistic actions that will lead to more mutuality and reciprocity between the child and others and to more satisfaction for the child. Thus, cognition (and intelligence) are important to the child not so much that he can fulfill the demands of school and of the technological society, but that he can create a life of more meaning and satisfaction for himself and for others. Kounin (1968) exemplifies this in respect to the relation between "gross locomotor" lessons in preschool environments and cognitive components of the lessons. When children are learning to dance to music, he observes, the addition of such passive-cognitive demands as "Stop to think whether you will dance fast or slow, or dance happy or sad" increases the degree of appropriate behavior. Thomas et al. (1963) note that verbal functioning and its underlying cognitive base are very influential in helping children overcome difficulties that they may have. Successful training in children who had an arhythmic temperamental pattern occurred when cognitive functioning was such that the child could be informed as to the functions for which he was being trained and could communicate his understanding of his own needs.

We have been discussing the increasing complexity of action as the child develops in terms of the added relative independence from domination by the stimuli in the environment for the construction of actions, and in terms of the steady unfolding of cognition as a component part, a regulating system within action sequences. A third area encompassed within this general topic is the subject of differentiation, or more particularly, differentiation accompanied by integration. As the child develops, his actions show a combination of greater differentiation and greater integration. This trend applies to action as such, to perception and conception, and to that domain so intimately tied to conception, language.

Murphy and her collaborators (1962) suggest that the younger child's overall bodily responses are so much less differentiated and much more patterned and stereotyped by convention and habit. As a consequence, his looking attitudes are more intimately embedded in his bodily orientation than is true of older children or grown-ups. He is less likely to search the world. As the child develops, his orienting reflexes that are present from birth become involved in greater differentiation and integration such that the child is more exploratory, stimuli become more meaningful in a cognitive and affective sense, and the child is able to use the world in a motoric way more effectively. They ask why children seem to give up ways of behaving after mastering them. The answer the authors give is that children do not ever give up what they have mastered; they integrate that which has been mastered into larger coping patterns. For example, interest in mastery of holding up the head wanes, but interest in doing something that includes holding up the head increases. Uzgiris (1967) comments similarly, noting that earlier reactions do not disappear from the behavioral repertoires of the more advanced infants. Rather, the earlier reactions cease to be as prominent, either coming to be integrated into higher level reactions or to be restricted to very specific circumstances. This observation is detailed in connection with a variety of schemas much as holding, mouthing, visual inspection, hitting, shaking, examining, tearing, pulling, rubbing, etc.

Witkin et al. (1962) and Mahler (1968) stress the developmental principle enunciated most clearly by Werner, but common to the Freudians and their related workers, that the child starts life without a clear distinction between himself and the outside world. The differentiation of self from others is a developmental task of first importance. The important thing to note in these discussions is that the child learns of himself and of the world at one and the same time. That is, the differentiation of self from world is also the differentiation of the world from the self. The degree of differentiation that characterizes the child is correlated with the complexity of the nature of the world in his understanding. The child does not know himself, his needs, fears, fantasies, etc., and has ignorance of the world. He can only know himself through a differentiation that is based on transactions with the world, and in which he discovers the nature of himself and of the world through their common and different attributes as found in these transactions. There is a reciprocal relation between self-differentiation and nonself-differentiation. Witkin et al. are clear to connect differentiation to the complexity of a system's structure. With more differentiation there is more heterogeneity, specialization, and separation of psychological areas, such as the separation of feeling from perceiving, thought from action. They also note that integration may be effective (i.e., have harmony among the components) and it may be complex (i.e., have elaborate relations among the components). They are clear to state that segregation from the environment in terms of differentiation does not mean lessened contact with or reduced importance of the environment. Mahler details the separation of the child from his mother through analyses of differentiation processes, also starting with a state in which the child does not distinguish himself from his mother.

Several specific issues are tied by various authors to the issue of differentiation. Ainsworth (1963), for example, notes that the child relates first to one major other and gradually develops attachments to a variety of other people. Children who have the best relations with their mothers are most likely to differentiate well in their conceptions of others and in their attachments to others. That is, they are likely to see the others as they are, rather than as substitutes for the mother. Tilton and Ottinger (1964) studied toy play of normal, retarded, and autistic children and found that the combinatorial use of toys, which involves greater differentiation and integration, was greatest in the normal children. The autistic child could not use toys in a combinatorial way.

Language development follows the same pattern as interpersonal relations (cf. Lenneberg, 1967, and McNeill, 1967). Language itself appears only at a time when the child has attained a certain degree of differentiation between himself and the world and is in need, therefore, of means for contacting and communicating with the world. It starts after the child has some cognitive comprehension (competence being before performance). Lenneberg leans upon Coghill's overall conclusions that behavior emerges as an integrated but undifferentiated whole involving the entire animal from the start. With development, a process of individuation of patterns appears which is manifested by the emergence of more specific and detailed behavior sequences. Language follows this pattern. McNeill (and many others dealing with language) remarks that from single word pivots, classes emerge by way of differentiation of that pivot class, the various grammatical classes such as articles, adjective, demonstrative pronouns, etc.

Wolff (1967) makes the same observation in regard to motor development. Motor development may be viewed, he says, as the transformation of simple rhythmical repetition, or "circular reaction," into integrated actions.

When now we take the whole topic of increasing complexity in action, we come upon what may be the origin for the conflict among writers concerning direct tuition for disadvantaged children or the provision of care that is more than tutoring or cognition-training. The child is an actor. Cognition comes out of the actions of the child in his process of separating himself from the world and coming to regulate his relationships with that world. If cognition is underdeveloped, it may very well be the case that it is so because the child did not engage in the kinds of actions that are fundamental to an underpinning for cognition. To attempt to impose upon the child by direct teaching various conceptual forms that are unrelated to the background of actions he has experienced is equivalent to demanding greater differentiation and integration than the child can comprehend. Similarly, insofar as school, whether preschool or elementary school, is completely divorced from actions on the world, insofar as thought and action are considered to be separate functions, the world may be making unrealistic demands on the child. The task for the development of children from lesser to greater complexity depends upon keeping the child engaged in the concreteness of the world in such a fashion that he will construct larger and larger units of action and will come to possess the experience of the operations that form the foundation of high level conceptual processes. Some people believe that the possession of language in and of itself demonstrates that the child owns conceptual apparatus of a high level. But language serves as social-emotional contact as well as purely formal conceptual contact with the world, and the nature of that language use by the child must be taken into consideration when making the judgment of how much experience the child has had with the transactions that lead to high level intellectual functioning.

As the Child Develops, His Actions Entail Increased Creativity in Dealing with the New

It has been implicit in much of the earlier discussion and can now be made explicit: actions do not spring full-blown from the infant or child but are constructions developed in the interplay or equilibration when the child deals with himself and with the environment that surrounds him. The child is dealing with his inner life and with the external world; he is engaged in reciprocal relations with others in the attempt to bind himself to others so that pleasure may be obtained by all persons engaged with each other. Such arrangements and organizations do not come about without creativity and active construction. It is as important to remember that actions are constructed as it is to differentiate action from motion. The trend in development is toward greater and greater creativity in the formation of unique constructions in everyday life.

Another way of formulating this general principle is to suggest that there is a trend toward dealing with the new in novel ways. This is the sense of Bruner's (1961b) view of discovery. The child does not create original solutions to the problems around him in the sense that the solutions are unknown or outside the bounds of man's prior achievements. The child does discover and create original solutions in that the actions he creates are a function of his own thoughts, motives, curiosities, and self-directed reasonings.

It is common sense that the newborn is faced with novelty and newness. He has not been around this world, so that all that confronts him is indeed new to him. But the neonate is not alone in this matter. Throughout life each person is continually faced with the unknown and the unsolved. Each new moment brings with it a share of uncertainty and of new potentiality. Thus, the difference between the undeveloped infant and the developed child is not that the one is faced with novelty and the other is faced with that which is familiar. The difference is that the fully developed child is more prepared to deal with the new in novel forms.

Fantz (1965) has drawn the provocative conclusion that perception is innate in the neonate but largely learned in the adult. One way of interpreting his conclusion is to see that the neonate's perception is more a function of his constitutional structure, while the adult's perception is more a function of his accumulated experiences. The neonate's perception is more predetermined by his past than is the adult's if this is true. The infant has no "choice" in his perceptions, whereas the adult must selectively utilize his past experiences in his current perceptions, and this is itself a creative activity.

Hunt (1965) and Kohlberg (1968), both leaning on Piaget, sketch for us the developmental trend that is connected with this increasing capacity to deal with the new in novel ways. Hunt speaks about three rough stages of development in respect to what he has called "intrinsic motivation" during the first two years of life. During the first stage the child is attentive and responsive to changes in ongoing input. In the second stage is found effort directed toward keeping or gaining perceptual contact with sources of input that have become recognizable through repeated encounters. At the third stage the child becomes interested in novelty. This interest in novelty leads the child to socialize himself and to be curious throughout his life. It leads to those flexible, reversible processes of thought which Piaget found were the properties of operational logic. Kohlberg refers also to Piaget's outline of the progression of stimulation to which the child is sensitive. At early stages the child responds to stimulations that are related to his innate reflexes. At later stages he becomes interested in new events he has not caused and then directly seeks to produce novel events.

To deal with the new in original ways necessitates an openness toward the world and toward experience. Such an openness depends upon a trusting, hopeful anticipation of what might happen. The child who is trusting and hopeful can enter into the present that surrounds him with less need to coerce a repetition of past experiences, with less of a tendency to rely upon tried and true, stereotyped behavior patterns, with less need to resolve immediately any strangeness or foreignness that is evident to him. Murphy et al. (1962), who note that by three years of age the differences in management of new and strange situations are clear cut, suggest that past experiences with satisfaction as well as current experiences determine how the child explores and contends with his world. If the child has mastered many situations, if he has entered into much mutual fulfillment with others, he is likely to be open to the world and able to use coping mechanisms with the new and unexpected that are oriented toward meeting challenge by aiming at new forms of balance. Mahler (1968) relies upon T. Benedek's view of confident expectancy to explain the willingness of an infant to wait and to be able to discover new ways of coming to terms with the environment. She also suggests, as does Ainsworth (1963), that the child who has been much fulfilled by his mother is able to separate from his mother more readily. There is at first the tentative exploration, the searching at the limits where the child can both have his mother nearby and yet be independent of her in the creation of his actions. Gradually, with a sense of confidence that the mother will be near if help is needed, and on the grounds of prior success in exploring the wider world, the child separates himself from his mother's determination of how situations will be formed and resolved and takes his creative role in the process. Hunt (1965) has also described this phenomenon. He says that just when the child's most active interest in the novel manifests itself, the child shows serious and persistent attachment to familiar persons and places. The child leans on the old to contend with the new.

Murphy (1967) has written that recent work gives far more respect to the spontaneous ways in which the child learns about himself and about the world and how he can function in it. Along with the listing of exemplifications of this factor (e.g., the child learns to actively select and turn toward stimuli, the child learns to look for fresh stimulation, the child learns to explore a wider and wider environment), she includes the idea that children who have been brought up in an interesting and varied environment show much greater exploratory tendency than children who have been brought up in barren, dull environments.

Stevenson (1965) reports that children whose parents use high frequencies of praise and approval at home are less responsive to social reinforcement given in an experimental task. He also reports that Gewirtz and Baer give evidence that social reinforcement is more effective following a period of isolation and deprivation and less effective after satiation. If we can assume that responsiveness to social reinforcement is less creative than going one's own way, or providing one's own reinforcements (as Bruner speaks of the self-regulation in the attention to rewards), then we can understand these results. The child who is less open to control by social reinforcement is the child who has been much satisfied at home and who is seeking to solve problems in the experimental situation in terms of his own concrete needs and the nature of the task rather than in terms of extrinsic, somewhat coercive mechanisms. Aronfreed (1969) treats the influence of social facilitation on a child's performance by the interpretation we have given to Stevenson's reports. Social facilitation works to release previously acquired patterns of behavior but impedes current learning. If a child is especially responsive to facilitation by the presence of other figures whom he may model or attempt to please, that child will rely on the past. If he is self-confident, he will learn more.

Kagan (1968) demonstrated that cardiac deceleration, which he calls a response to tension or novelty, decreased with age. He attributed the greater capacity to confront novelty of middle-class over lower middle-class children to the better parent-child relations in the middle-class homes.

Thomas et al. (1968) seem to agree with the idea that much prior fulfillment leads to more openness to new situations and lack of fulfillment leads to withdrawal from the new, except insofar as there are temperamental factors. They have described certain children who are disposed toward withdrawal not on the basis of insecurity but on the basis of temperament.

The alternative to this greater openness to the new with development is a tendency toward relying upon the past, more especially toward repeating the past. Freud (1965) compares the normal and the neurotic child in this respect. She says that all individuals, as they develop and mature, have a hunger for new experience which is as strong as the urge to repeat. The former is an important part of the child's normal equipment; yet, neurotic development may tip the balance in favor of the latter. As an example she describes the child coming into analytic treatment. The child who enters analysis sees in the analyst a new object and treats him as a new and unique person insofar as he has a healthy part to his personality. Insofar as the child is dominated by his neurosis or other disturbance, he uses the analyst for the repetition of his past unhappy experiences.

The autistic child represents the classic instance of a child who repeats the past and fails to deal with the new. As DesLauriers and Carlson (1969) point out, the autistic child finds no profit in any new experience because such experiences are customarily beyond his awareness. Because the child does not become aroused and fulfilled in new experiences, he is turned away from looking to the new and the novel, and he repeats in stereotyped detail the actions that he has acquired in the past.

Murphy et al. (1962) distinguish between constructive and defensive coping devices according to whether they are aimed at new balances or at maintaining an old balance that was once achieved.

If the conditions for positive development toward dealing with the new in novel ways are conditions of satisfaction and mutual fulfillment, the conditions for reliance upon stereotyped repetitions of the past are conditions of frustration and of failure to establish mutually satisfactory bonds with others.

Yet openness to the new is only the beginning of a relationship with a situation. That openness must lead to active dealings with the situation in the creation and construction of transactions. The artist must be inspired if he is to be creative, and inspiration depends in great degree upon what is here called openness. But the artist must also be accomplished and disciplined if he is to create a work of art. So too the developed child must have capacities, persistence, determination, discipline, task-orientedness, etc., if he is to construct actions that are productive for him. In the formation of actions the child moves from this state of openness, in which we may see the orienting, exploratory, curiosity-bound, trusting condition, toward the organization of discrete, specified goals and the striving toward them. First comes a sizing-up of a situation, which may be done conceptually or through acting on the world to see what it is like, say Murphy et al. (1962). Then comes the mastery of that world.

Block (1968) is much concerned with this alternation between openness to the world and acting upon it in his work on ego development. He speaks of ego control as an inner balance between impulse control, delay of immediate gratification, experimental action via thought and spontaneity that brings satisfaction through action on the world. He is critical of Bruner and Kagan for emphasizing too much the reflective, cognitive, sizing-up component of action and for underemphasizing the value of acting in the world, sometimes impulsively as a form of spontaneity.

Wolff (1966) and DesLauriers and Carlson (1969) see the two phases in terms of arousal and alertness to the world, followed by consolidated efforts and selected, directed dealing with the situation. Wolff notes the common finding that hunger has an initial augmenting and a subsequent disorganizing effect on goal-directed activities in the newborn infant. The organizing influence alerts the child to a searching and seeking. If the child fails to find satisfactions through his limited repertory of actions, he becomes disorganized. DesLauriers and Carlson (1969) lean upon a theory of two arousal systems formulated by Routtenberg. Arousal System I is active originally in new, novel moments; Arousal System II is a consolidating factor in respect to motivations. The imbalance between the arousal systems is thought to be causative of early infantile autism.

The construction of actions, thus, has two counter-balancing facets. There is an openness needed by the child so that he can learn about what is operative within himself and within his environment. The construction of actions will be enhanced if the child is maximally open because more can be included in the actions when more information is available. There is also the forward thrust of the action, the consolidation of all motives and social and material forces into a goal-directed resultant. These two facets may be separately phased, however, and the child may be moving toward a goal while he is at the same time taking in information on what is currently in effect. He may shift his goal after added information is taken in or he may force his own goals on the people around him in order to maintain his direction.

This perspective helps us to understand some conclusions drawn by various of the writers. Baldwin (1965), Deutsch (1967, 1968), Jensen (1969), and Kohlberg (1968) are among the authors who suggest that preschool education which is too free, in the sense of complete free play for the children or nondirectiveness or self-abasement by the authorities, poses problems for certain children, especially the disadvantaged who come to educational settings from backgrounds in which they experience much defeat and are therefore not open to the unknowns of the world. These children, who are often facile in "new" situations on the playground, where they can repeat their established modes of sociability, tend not to benefit from such free play and permissiveness. The reason would be, according to the analysis made in this section, that such children are prone toward repeating the past. The free play does not invite curiosity and exploration, which depend upon hope and confidence. Rather, it calls forth a rapid repetition of what has become established previously. When this repetition has been accomplished, then a new command is sought from the world. (Incidentally, these are the children most attuned to social reinforcement, as we have noted earlier.) Such free play calls for an openness that the children do not possess; it does not fit within the range of the child's capacities.

For children with a well-developed capacity for dealing with the new in novel ways, there can also be too much nondirectiveness and free play, but this is of a different order entirely. For these children, there must be opportunity and encouragement to move from openness into disciplined endeavor.

In an educational setting which is too didactic, which is too directed, the problem is of a different order. For the child who comes from many experiences of frustration, it will be necessary to have tasks that will allow him to complete something successfully, but such tasks must not encourage unduly the child's commitment to the repetition of past actions already formed. The tasks must fit the child's capacities, but they cannot foster his avoidance of the new.

This topic of learning to deal with the new in novel ways is of central importance in development. By the time the child is five years of age he will have solidified his modes of dealing with the new. (Murphy et al., 1962, say that by three years of age his preferences are already established.) School represents the normal challenge to the child's capability in respect to handling the new. The school experience, which takes the child out of the home for considerable periods of time, is itself a relatively new world. Moreover, schooling is founded on cognitive and intellectual functioning, the very ingredients within the child's system that are oriented toward assisting the child in facing novelty with originality. The hopelessness and distrust of disadvantaged children suggest that these children are not simply lacking in cognitive ability; they are mobilized actively against cognitive functioning. Theirs is the defensive coping of reestablishing old patterns over and over again. To be open, exploratory, and searching is seen as merely exposing oneself to new hurts and defeats. It seems better not to try to construct actions in new ways.

Part II. The Child Is Simultaneously Autonomous and Socially Related

General Statement

The child is not only an actor; he is a person. One aspect of being a person is to have separateness, uniqueness, individuality, or more generally speaking, autonomy. It has become increasingly recognized and incorporated into scientific thought that the child is autonomous in one form or another from the day he is born. A second aspect of being a person is to ever and always be socially related. Persons exist by their relations with other humans.

These defining characteristics of being a person do not have separate existence. The child is autonomous in his social relatedness and he is socially related according to his unique, individual form. Thus, when we see an emphasis upon the child's separateness, we will find such separateness defined in terms of its contributions to the child's social relations. And when we see attention focused upon the child's social relatedness, we will find that relatedness connected to promotion or hindrance of the child's functioning as an individual. Yarrow (1967) has put the matter succinctly. He remarks that the growth of individuation, the development of dependency, the growth of autonomy, and the development of social attachments are all aspects of the same process of social development. Kohn's instruments for measuring competence and symptoms rely on both autonomy (interest and participation vs. apathy and withdrawal) and social relatedness (cooperation and compliance vs. anger and defiance). Murphy et al. (1962) observed a correlation between ability to use help and ability to act separately in mastering difficult tasks. They describe one instance in which a young girl showed resistance to encouragement and help during a period of coming to terms with a challenge, which was followed by the ability to use help—help which respected the child's right to determine her own timing and readiness—and which in turn was followed by autonomous effort and mastery. Elsewhere in this same report the authors mention seeing the capacity of many of the children to follow their own initiative when the situation permitted, yet at the same time being able to accept help or ask for it when they had come to the end of their rope. This parallel autonomy and realistic acceptance of their own limitations seemed to be basic factors in their security in relation to the world.

Yarrow was concerned with normal development. Abnormality also helps to define normal development. We should expect to see in abnormality both the combination of autonomy and social relatedness and the equal disturbance in the two aspects of being a person. Schopler, in his writings (1966) and his application, makes such an observation. He remarks that schizophrenic children give more avoiding and more demanding behaviors than normals and retardates with whom they were compared. The disturbed child tends to be aloof (isolated in his autonomy) and clinging (completely dependent in his social relatedness). The distortion in one tends to be matched by the distortion in the other. Lovaas et al. (1966) refer to the combination in autistic children of much self-stimulatory behavior and much tantrum behavior. In referring to autistic children, DesLauriers and Carlson (1969) assert that the obstacles to receiving adequate sensory messages which are within the children have severe effects on their capacity to separate and differentiate themselves from others, to establish meaningful relationships with others and to communicate with others. White, DeMyer, and DeMyer (1964) report that autistic children do not meet the eyes of others, fail to imitate, reject physical contact with others, spend most of the day in self-generated activities, yet are aware of others and listen to what is going on. They tend to use adults as tools or spend time enraged with adults.

Lenneberg (1967) suggests that the infant from birth onwards is a person rather than thing. Once the individual mammalian attains freedom from the intrauterine influence, he says, he is neither a passive tool that may be put to any arbitrary use nor a tabula rasa into which behavior can be arbitrarily inscribed. But is the child egocentric in the sense that he is preoccupied with himself at the expense of others or with complete ignorance of others? This was once a dominant theme in respect to the child development literature. The child was considered to be a little animal who would exploit his parents for his own gain, who would act in his own interests only, and who needed training to be fit to live in human society. Anna Freud (1965) seems to adopt such a view of the child. She speaks of a developmental line from egocentricity to companionship. The young child is selfish, narcissistically oriented in his outlook. He comes to relate to other children as lifeless objects, then as helpmates in carrying out a desired task and finally as partners and objects in their own right. But such a view implies that there is objectification of self and of one's own needs prior to objectification of others. And the literature on differentiation of self explicitly denies such a view.

The alternate view that seems to have come into prominence recently is that the infant is cooperative and self-directed in equal proportion. His self-differentiation (egocentricity) and other-differentiation (dependency) may be of a primitive sort but one is not more developed than the other. Murphy et al. (1962) are convinced that children are much more reality-oriented than our usual picture of the egocentric, animalistic, fantasy-flooded preschool child would lead us to expect. Unrealistic, bizarre responses occur in only a few children, they observed, and usually when deep anxieties or conflicts causing stress to the child were experienced. Mahler (1968) found herself forced to give up the distinction between autism and symbiosis in psychotic children as the defining characteristics, because autistic children were socially related in a primitive way and symbiotic children were isolated. She now relies in her categorization of infantile psychoses on the dominance of withdrawal or symbiotic dependencies. She notes that no human being can live in an altogether objectless state. Wenar (1964) was very impressed with the objectivity of behavior demonstrated by one-year-olds when he expected to find self-serving little beasts. He develops the concept of executive competence to account for both the autonomy and social relatedness of the young child.

Descriptions of the initiative of the infant and child in respect to adult figures also support the theme that autonomy and social relatedness develop together. DesLauriers and Carlson (1969) stress this fact. They quote Blauvelt and McKenna to the effect that immediately after birth the infant and his mother possess the capacity to properly and mutually orient themselves to each other in an active and purposeful way. Their work shows that the two-year-old relates to his mother through initiative in moving toward the mother and inciting from her movement toward himself. In their treatment of autistic children they were concerned to establish with the child that he had a clear awareness of their presence. They tried to build this on the child's initiatives. Wolff (1966) suggests that spontaneous motor activity in the neonate demonstrates that the human organism can initiate organized behavior patterns without external stimulations long before there can be any question of intentional behavior or volition. Ainsworth (1963) states that one feature of attachment behaviors that struck her especially was the extent to which the infant himself took the initiative in seeking an interaction. At least from two months of age onwards, and increasingly through the first year, these infants were not so much passive and recipients as active in seeking interactions.

A final set of reasonings that ally autonomy and social relatedness in the child's development concerns the overall view of socialization that dominates the literature. The socialized child is one who has internal control over his actions. The greater the internal control developed by the child, in such areas as self-criticism, resistance to temptation, and ability to delay gratification, the more socially able and cooperative the child becomes. Aronfreed (1969) makes the case for self-criticism. Clausen (1966) makes the general case when he asserts that socialization designates the processes whereby the infant child is led to take on the way of life of his family and of the larger social groups in which he must relate and perform adequately in order to ultimately qualify for full adult status. Crandall et al. (1960b) see achievement motivation in terms of seeking approval and avoiding disapproval of others for the competence of one's own performance against some standard of excellence. Children grow toward independence and achievement motivation, and in doing so seem to enter into new forms of social relatedness. Meers and Marans (1968) report that in the Communist world much effort has been expended to develop in children a high valuation of collective possessions. It has been found that tuition toward collective responsibility that comes too early runs into trouble because the child has not yet had the sense of valuing private possessions. Unless babies and children also have a sense of the individual value of things, they cannot have a sense of the collective value of things.

stimulation is one of the most prominent characteristics of a young infant. Stechler and Latz (1966) propose that the infant shows vigilance, a heightened readiness to respond to stimuli.

The individuality of children, their first signs of autonomy in infancy, is heavily determined by their constitutional conditions and dispositions. Walters (1965) was able to demonstrate that fetal movements during the seventh month were correlated significantly with motor and adaptive scores on the Gesell Development Schedules at 12, 24, and 36 weeks of age post-natally. Lipton et al. (1961) were able to differentiate newborn infants according to cardiac-rate responses. They suggest that it is likely such physiological responses form major links in the chain which leads to characteristic emotional manifestations in later life. Bridger (1961) distinguished four groups of infants according to their ability to habituate and discriminate through their sensory apparatuses. Some babies respond to most stimuli and habituate to them quickly; others respond to most stimuli and do not habituate or habituate slowly; still other babies respond to few stimuli but habituate quickly when they do respond; and a fourth group of babies respond to few stimuli and do not habituate. Birns et al. (1966) studied the effectiveness of various soothing techniques on human neonates and found first that all soothing stimuli (e.g., tone, pacifier, gentle rocking, warm water on the foot) were better than no soothing. But no one particular soothing technique was found to be best for all children. Some children were more likely to be soothed by one stimulus, other children by a different stimulus. In addition, a neonate who is easily soothed by one stimulus tends to be easily soothed by all; and conversely, a baby difficult to soothe with one stimulus is relatively difficult to soothe with all stimuli. They conclude that human infants can be characterized by an overall quality of excitability. We may add to their conclusion that this difference in excitability has significant consequences for the social relationships in which the infant becomes engaged.

Thomas et al. (1963) conducted an extensive longitudinal study in respect to temperamental patterns during the first two years of life as these are determined by constitutional factors. They used nine categories for the assessment of individuality: 1) activity level; 2) rhythmicity; 3) approach or withdrawal to new objects or situations; 4) adaptability (responses to new or altered situations); 5) intensity of reaction; 6) threshold of responsiveness; 7) quality of mood; 8) distractibility; and 9) attention span and persistence. They were able to show that initially identifiable characteristics of reactivity are persistent features of the child's behavior throughout the first two years of life. They suggest as an illustration of the relevance of this finding that children with clear-cut rhythmicity in elimination, other things being equal, were far more readily toilet trained than were those children in whom evacuation occurred irregularly and with no simple temporal patterning. They suggest that the child's primary reaction pattern may influence his parents' immediate and persistent reaction to him.

Wolff (1966) studied motor behaviors of neonates during sleep and drowsy states. He found that otherwise immobile infants make a variety

Part II is an exploration of a set of considerations within the framework of autonomy in social relatedness. Various factors that belong to the autonomous strivings or capacities of the child are studied but always in connection with the fact that they are tied to his social relationships. Thus, for example, the child's cognitive and language development in and of itself can be seen as the unfolding of the child's capacities to discover and create new forms of social relatedness. We see *autonomy* in social relatedness. Similarly, the attachment behaviors and other social relationships are studied, including their contributions to the autonomy of the child. When social relationships affect the development of language, for example, we see autonomy in *social relatedness.*

The following subthemes are considered:

1. Constitution helps determine the child's autonomy in social relatedness.
2. There are developmental stages for autonomy.
3. Cognitive development facilitates the creativity and autonomy of the child.
4. The development of language is a function of cognitive development leading to autonomy.
5. Internal control of behavior is an outgrowth of early autonomy.
6. There are developmental stages for social attachments.
7. The child learns the principles of social relatedness from the social relations he experiences.
8. Cognitive development is influenced by social relatedness.
9. Language development is influenced by social relatedness.
10. Young children frequently imitate adults.
11. Attachments and separations affect development.

Constitution Helps Determine the Child's Autonomy in Social Relatedness

A significant proportion of the material to be covered in this section of the report has been referred to previously in another context in Part I, especially under *Action Binds the Child to People and Things.* On the one hand, much of the individuality of the infant and the child starts from his personal constitution. On the other hand, as a result of forces operative during the course of evolution, each child is predisposed, pretuned, to relate to other human beings. The infant's separateness and his disposition toward togetherness with others are both part of his constitutional organization.

The infant has a constitutional bias that calls for stimulation. If he does not receive stimulation from the world, he will wither and die very early. Stechler and Carpenter (1967) state that we now see babies as seeking stimuli, as organizing themselves around these stimuli, as having considerable capacity to process information contained in stimuli and, within limits, to regulate the adaptive mechanisms of the body in relation to that information. Schaffer (1963) remarks that there is a general need for stimulation from which derives the need for social stimulation. He quotes Rheingold to the effect that a searching of the environment for of well-circumscribed and apparently uninstigated behavior patterns; these are repeated in stable form in the course of successive days; they include startles, sobbing inspirations, twitches of the face, and similar motoric discharges; the greatest concentration is seen when visceral and external stimulation is minimal; and they can be elicited by external stimuli as well as by spontaneous mechanisms.

The young infant, says Kessen (1963), is not incompetent. He has far greater capacity for sensory discrimination than was presumed a decade or two ago. Hershenson et al. (1965) show that the perceptual system of the newborn human is more highly organized than previously thought. Infants prefer shapes with ten turns in them to shapes with five or twenty turns in them. Stechler and Carpenter (1967) declare that the normal newborn shows selective attention that is under the dual control of the state of the organism and the nature of the incoming information.

This competence has a directedness that makes the child prepared to relate to other human beings. As Stechler and Carpenter put it, the infant is selective in the patterns that he prefers to look at. Rudel and Teuber (1963) compared the difficulties children had in discriminating oblique rectangles. Children, like octopuses, were found to be more capable of discriminating vertically oriented contours. They suggest this may play a special role in the maintenance of the upright posture of the human. Fantz and Nevis (1967) demonstrated that infants can and do discriminate configurational differences by two months of age. They found differences among infants in their preferences for configurations and suggested that these differences seem to be correlated with intelligence. Preference for complexity and patterning would be concomitant with higher intelligence. Hershenson (1964) studied fixation preferences of newborns for stimuli varying independently in brightness and complexity. In the brightness area, preferences seemed to be for intermediate brightness first, bright second, and dim third. Infants in this study seemed to prefer less complex rather than more complex figures.

A number of studies have revealed that human infants are constitutionally disposed to prefer to look at and attend to human objects. Kagan (1965) reports that humanoid patterns clearly elicit more sustained attention than other stimuli. Human voices also seem to be responded to in a special way. Fitzgerald (1968) studied one-, two-, and four-month-old children in respect to pupillary activity. He found greater pupillary dilation to the presentation of social rather than nonsocial stimuli. Walters and Parke (1965) note that the complexity of stimuli is important to the infant's attention; they also remark that vision at first is geared to eight or nine inches, just right for the mother's face. Haynes et al. (1965) show that an alert newborn infant can focus his eyes only at a particular distance (about 19 cm.). Images of targets nearer or farther away are proportionately blurred. It can be added that this distance is about that which exists between a mother's face and the infant's eyes when the mother is nursing the infant at the breast. Wolff (1963) says that the first clear indications of a "social smile" appear during the third week after birth when a specifically human stimulus elicits a smile more consistently than other stimulus configurations.

Stechler and Latz (1966) say that the human face is specific as an excitatory stimulus during the early days of life. They note that sometimes the human face leads to specific withdrawal responses. They wonder whether this is a normal developmental phenomenon or an early sign of pathology. Perhaps it is an intolerance of nonreciprocation or inappropriate reciprocation established early in life.

Psychopathology in childhood is often related to constitutional deficiencies and difficulties that prevent the normal unfolding of autonomy in social relatedness. Mahler (1968) cautions that children suffering from infantile psychoses are not to be thought of as normal children in whom a psychotic process is induced by an emotionally disturbed mother. These children are constitutionally vulnerable or disposed toward psychosis. Ornitz and Ritvo (1968) speak about a failure of homeostatic regulation of sensory input as underlying the deficits found in autistic children. They suggest that whirling, preoccupation with spinning objects, and other such attributes found in autistic children are related to a tendency on the part of these children to provide their own sensory input. Ornitz in his application for support says that he hopes to show that early infantile autism is a disease associated with a deviant neurophysiology which particularly affects the capacity to experience constancy of normal perception. Schopler (1965) refers to the emerging view of infantile autism as a cognitive disorder involving an inability to relate sensory experience to memory. There is a dysfunction of receptor usage, an avoidance of distance receptors. DesLauriers and Carlson (1969) see the fault in the arousal systems of the child, an imbalance between two arousal systems. White, DeMyer, and DeMyer (1964) refer to abnormal EEG patterns in children with schizophrenia.

Thomas et al. (1968) discovered particular constellations of temperament that could be identified by frequency of association with behavior disorders. Five different constellations were isolated: 1) a combination of irregularity, nonadaptability, withdrawal responses and a predominantly negative mood of high intensity; 2) a combination of withdrawal and negative responses of low intensity to new situations, followed by slow adaptability; 3) excessive persistence; 4) excessive distractibility; and 5) markedly high or low activity level.

There Are Developmental Stages for Autonomy

In the early weeks of life autonomy is manifested through the infant's sensitivity to stimuli. Greenberg (1962) has described four gross behavior states found in infants and young children. State I is sleep; State II is called minimal random activity; State III is moderate random activity, restlessness, etc.; and State IV refers to extreme random activity. He observed that cardiac rate fails to differentiate between States I and II in the early neonatal period. By two weeks of age, however, such differentiation is accomplished. Stechler and Latz (1966) report a period of "obligatory attention" at ten days of age. Stechler and Carpenter (1967) describe the progression of interest in stimuli of infants. In the first week the infant presented with a vivid target become motorically still, his eyes respond, and he enters a state of ready reactivity. This is summarized as orientation-quiescence-readiness. By the age of two weeks babies show manifest excitation when presented with human and non-human stimuli. At this age infants show that they need stimulation and find pleasure in receiving it. During the fourth week of age the human face seems to elicit more excitatory movements than does a non-human stimulus. During the fifth to seventh weeks there unfolds cooing and smiling when the infants are faced with a human configuration.

Wolff (1963) studied smiling during the first weeks in connection with sensitivity to stimulation. The first clear indications of a social smile appear during the third week after birth when a specifically human stimulus elicits a smile more consistently than other stimulus configurations. At three and one-half to four weeks of age the baby can focus in eye to eye contact with another person. Now he can focus as if he is looking at the person rather than through him, and the contact with the eyes helps elicit a smile and the beginnings of vocalization. The stimulus-boundedness of smiling gradually recedes during the third month of development and the infant smiles more selectively, as if he were no longer compelled to smile each time he hears a voice.

Emde (1967) is studying currently the development of affect during the first year of life. He believes there are special discontinuities in the development of infants at three to four weeks of age and again at eight to ten weeks of age. He presumes that at three to four weeks of age there is a sudden increase in sensitivity to external stimuli and at eight to ten weeks the infant may develop protective mechanisms which cause such stimulation to be much less disturbing. By three months, thus, the infant would have acquired some self-regulation of a new order in respect to sensitivity to stimuli.

White and Held (1967) and White, Castle, and Held (1964) have studied visually directed reaching and have associated this process with sensitivity to stimuli. They note that there was a big increase in visual attention at two months of age when children saw their fists. For the next six weeks these children looked at their hands and feet very much. (Some of this preoccupation with their own hands and feet is attributed to the blandness of their environment, since these children were observed in institutions that did not have overly rich environments in regard to stimuli.) At three and one-half to four months of age, when the children could move their trunks, there was also a big jump in visual attention. These investigators believe the age range from one and one-half months to five months of age is a time of enormous importance for early perceptual-motor development. In the middle of the second month there is a dramatic surge in both visual activity and in development. During the next three and one-half months the following events occur: development of flexible accommodative function: discovery of hands and gradual development of manual control by the visual system; initiation and development of blink responses when there is an approaching visual target; the initiation and complete development of visual convergence; and the onset of social smiling.

They provide in detail the normal sequence of behaviors relevant to prehension, and they claim that there is a relatively orderly character to the sequence. At one to one and one-half months there is peripheral pursuit; at one and one-half to two months there is central pursuit; at two to two and one-half months there is evidenced interest in stimuli—the child swipes at stimuli, shows object-oriented arm movements; at two and one-half to three months there is immediate fixation, a drop in activity level, and a swiping or near-touching; at three to three and one-half months the infant raises one or both hands with glances from the stimulus to the hand and back again. At three and one-half to four months the child is still looking at the stimulus and his hands and sometime turns his torso toward the object. At four to four and one-half months the child consistently turns his torso to the object—he sometimes looks at his hand which he has raised, and brings it toward the object, with which he occasionally fumbles and grasps; and at four and one-half to five months of age there is a rapid lifting of one hand from out of the visual field to the object—as the hand approaches the object, it opens in anticipation of contact.

From about the third month of age onwards, autonomy is manifested more directly in the child's initiation of activities, his self-regulation of interests, his separation from his environment in perception and in action. Murphy et al. (1962) give one outline of the development of autonomy. By three to four months the child is seen to manage his own body. At around this time there is early differentiation of the self from the environment. Between three and six months of age clear signs appear that the child receives pleasure in being a cause, in getting action from his mother. At around six to ten months of age, with the onset of teeth, sitting up, and separation anxiety, the child begins to relate differently to his regular caretakers, such as his mother, and to other persons. By the end of the first year and the beginning of the second year, the child develops locomotion and the independence associated with the ability to move further. Then follows the onset of language. By two and one-half to three years of age, children have developed highly individualized patterns, defense mechanisms, coping styles. The writers conclude that by the age of three years the individual differences between children in management of new and strange circumstances are clearcut. In normal children autonomy is well established by this time. The child can make his wants known, is not often cowed or bewildered in different situations, can accept his own limits, has the capacity to set limits to demands and pressures from the environment, has the capacity to delay, shows preventive coping, avoids difficult situations in an appropriate way, can be negativistic in the sense of having his own preferences rather than always submitting to others, shows a readiness to seek and use help, and has determination, persistence, and the ability to refuse help insofar as he is able to manage by himself. The basic patterning of the relation between the child and the environment that is laid down in the first six months of life tends to be consolidated by three years of age.

Sander (1962, 1964) provides an alternative analysis of the progess of autonomy in the context of the adaptive relationships between the mother and the child. He sees five periods in early adaptive adjustment.

From the first through the third months of life he observes a primary modulation between mother and child which is based on coordination of basic reflex activities of the infant with respect to feeding, postural maintenance, or need to be soothed and comforted. Between the fourth and sixth months there is social-affective modulation; the infant and mother smile back and forth, with the infant adding full motor and vocal involvement in the smiling play. At seven to nine months is the onset of initiative by the child. The child initiates activities directed toward securing social exchange with the mother and toward manipulation of the environment. From the tenth through the fourteenth months the child is engaged in focalization. He focalizes need-meeting demands on a particular person, usually the mother. Finally, from 15 to 20 months of age the child begins true self-assertion. He widens his determination of his own activity, often in the face of maternal opposition.

Mahler's (1968) theory of separation-individuation is an account of the unfolding of autonomy in the first two years of life. The separation-individuation phase lasts from six months of age to about two and one-half years of age. Passage through the normal sequence of separation-individuation is a prerequisite for the development and maintenance of a sense of identity. The child develops his autonomy in the presence and with the emotional availability of the mother. As he acquires upright posture and locomotion, he comes to explore further and further, always in connection with a hold on his mother. At 16 to 18 months he reaches a nodal point. At this time he has an inflated sense of his own powers, a sense of much greater independence and capability than he in fact possesses. This happens because he has not completely differentiated himself from his mother and he sees her help to his accomplishments as his own power. From 18 months to three years he passes through the clarification (and deflation, if he is not properly helped) of the true extent of his autonomy. Thus, the individuation of the child, achieved by three years of age according to Mahler, comes through his embeddedness, first autistically, then symbiotically, and then in the process of separation-individuation, with his caretakers.

Other writers focus upon particular periods of time in the first five years for particular aspects of the development of autonomy. Hunt (1965) and Bruner (1966) follow Piaget in specifying the nine months of age point as especially important. The child at this time has a sense of object constancy. A thing which disappears is remembered and looked for rather than simply forgotten. Mahler agrees with the importance of object constancy and the date of its onset, but is convinced that a truly affective understanding of object constancy is solidified at a later age.

Biller (1968) says that sex role orientation, knowing what belongs to the role of one's sex, is acquired for the most part in the second and third years of life.

Schopler (1966) argues that there is a striking increase in the use of distance receptors, especially visual interest, between the age of three and six years.

Thomas et al. (1968) remark that there are relatively few instances of psychiatric symptoms appearing before three years of age. A sharp increase in incidence of psychiatric symptoms begins at this time and rises to a peak between four and six years. There is a progressive drop in new cases of children with psychiatric symptoms in subsequent years. They say that this is similar to findings reported in the Berkeley Growth Study.

There appear to be nodal points during the first three years in regard to the onset of autonomous efforts on the part of the child. These nodal points occur roughly at three months of age, nine months, 18 months and 36 months of age. At three months the infant can distinguish among persons and between himself and other people. He begins to show initiative in preferences as a consequence of the more sophisticated functioning of his sensory systems. At nine months, with the conception of object constancy, the child begins to try separating himself from others. Knowing that other things can disappear and return, he begins to see how far he can accomplish things on his own. It is notable that this becomes a dangerous age for children whose parents do not wish to see them unfold as independent persons. Elmer (1967) reports that child abuse rises sharply at nine months of age and then gradually moves toward a peak at between two and three years of age. Sander (1964) remarks that at around nine months, when the infant tries to elicit socially reciprocal responses from others, certain caretakers interpret the child's initiative as intentionally aggressive, justifying restriction. At 18 months the child reaches a peak of self-assertiveness; and at 36 months the child's autonomy patterns seem to be established.

It is from these studies on the developmental stages in the unfolding of autonomy that the arguments stem for the overriding importance of the first three years of life. The line of reasoning is simple. The first three years of life are the most important because the basic patterns of behavior and of personality and cognitive structures that help create behavior are established. The very existence of these structures influences future development because they are concerned with the child's autonomous regulation of himself and of his encounters with the world. If the child has had a series of poor experiences during the first three years of life, he will form self-protective means that will intrude upon all of his encounters. He not only is less open to the world; he is actively turned against the world and resistant to its influences. Such is the common outcome when autonomy and social relatedness in their combined form are built upon deprivation and discouragement. If the child in pushed to independence too early, he will not only show rigid isolation, he will also reveal distortions in his efforts to relate to others. If the child is not allowed or encouraged to exploit his developing tendencies toward autonomy, he will not only be excessively dependent, but unable to be productively self-directed.

It should be said that *all* children, even after three or five years of age, are available for dramatic change in their lives. The general reasoning above is not that children cannot change, but that it takes much more effort to change them once they have established full-blown forms of self regulation. If these authorities believed that change were essentially impossible after the first three years, they would inevitably be led to conclude that change is impossible after birth and nothing but a genetics program would be socially useful. (Some writers seem to suggest this: for example, Jensen (1969), with respect to intelligence and Negroes.) They would be led to such a conclusion on the basis of the many constitutional contributions to autonomy that we have seen documented in the previous section. Murphy et al. (1962), for example, suggest that the basic patterns of autonomy seen in the first six months of life are also seen in differentiated form at three years of age. Most authorities who specify the importance of the first three years do not adopt the conclusion that only a breeding program can produce children who successfully adapt to modern life. They suggest that the normal unfolding of autonomy in the context of positive, reciprocal human relations will be sufficient if it can be provided for all children. And they demonstrate, as have DesLauriers and Carlson (1969) with autistic children, that by applying intensive and well-conceived therapeutic techniques, even the most disturbed children can be helped significantly.

Two topics must be kept separate in this general area, and writers on care for children do not always maintain the separation. The fact that the autonomy of children is fundamentally solidified by three years of age is one of these two topics. That fact seems rather well documented and established. The second topic concerns intervention in respect to children with disturbances or who live in environments that are likely to produce disturbances. It may be that intervention during the first three years of life in a preventive manner may be the most effective means for socially affecting the lives of children in difficult environments. At the very least, such interventions will not have to contend with the highly developed resistance of the children themselves that is a function of their established self-regulation. If intervention is begun prior to a child's adoption of self-protective devices that alienate him from his surroundings, that intervention will be more easily implemented and may influence the child in a profound way. But it is not necessarily the case that, given limited resources, society should concentrate its interventions during the first three years of life. On the face of things, this may be impractical, as we shall see when we discuss continuity in programs. If provisions are made for day care or other services geared to the first three years of life, several questions immediately arise: What about the years from three to five? Will we provide for children for the first three years and then hope for the best in their hostile environments? Is it possible to center one's services on the first three years or must society attend to all the years of childhood? The obvious conclusion is that the establishment of autonomy during the first three years of life is one important consideration that must enter into social planning for children, but it is not to be understood as overwhelming or decisive in its implications.

Cognitive Development Facilitates the Creativity and Autonomy of the Child

The consequences of normal growth and development are reflected in the child's increasing ability to be complex and creative in fashioning his actions in accordance with a greater variety of conditions. A defining characteristic of action is that the organism is simultaneously organizing its inner component parts into a unity and forming systematic relationships with things and people in the outer world. With development, action involves increased creativity in dealing with the new.

The notion that action is doubly directed, and leads to increased creativity in dealing with the new, is evident in discussions of cognition and intelligence. Cognition is both self-regulation and relation to the environment. Those processes which show the greatest independence from dominating environmental or instinctual regulation, the rational processes, are the most advanced of all human abilities. For these Piaget reserves the term "intelligence" (Elkind, 1969). Bloom (1964) has asserted that an individual is born with a nervous system and physiological make-up which are the bases upon which general intelligence is developed. According to Hunt (1969) this constitutional make-up of the organism takes on meaning in transaction with the outer world, and the development of intelligence becomes a function of the cumulative effects of informational and intentional interaction with physical and social circumstances. In experiencing his own reflexes to these interactions, the individual is led to use and to apply them, resulting in new thought and behavioral processes. Mental systems evolve from the interaction between the individual and his environment. The intellect organizes its own structure, which determines its response in terms of effectiveness and creativity to new situations. Consciousness, judgment, reasoning, and all other attributes depend on the intellectual capacity to organize, experience, and think out alternative solutions to problems.

Intelligence or cognition may be thought of as increased capacity for creativity in dealing with the world, especially the novel situations for which one's experience does not offer a pat solution. This increased capacity for creativity for dealing rationally with the reality situation, without undue and perhaps less rational influence of the environment and instinctual sectors of the organism, might be thought of as the intellectual autonomy of the individual.

This section of Part II explores the discussions and issues which contribute to the capacity of the individual for the development of intellectual autonomy, or increased capacity to deal with the new. The following subthemes seemed evident in the work explored:

a. Inherent characteristics affect cognitive development.
b. Cognitive development involves a maturational process of hierarchical stages which incorporate characteristics from a prior stage.
c. Cognitive growth occurs through the motivation to master the new and the more difficult.
d. Autonomous thinking is based on a definite internal cognitive organization which permits the child to interact realistically with the external world.

Inherent Characteristics Affect Cognitive Development

The discussion of what intelligence or cognitive development is persists throughout the studies analyzed. Most concede that it is far more than an IQ score, or academic ability. Hunt's (1969) definition seems to incorporate most of the elements considered necessary by a majority of the researchers reviewed. He saw cognition as the mode of operations developed out of human experience that form the capacity to perceive, evaluate, and execute in an effective manner. This leads to successful coping with one's environment.

Another major discussion among the cognitive development research involves the question of whether or not cognitive level is predetermined genetically. Jensen (1969) set up a furor with his article stating that it was not an unreasonable hypothesis from evidence taken together (none of which is definitive alone) that genetic factors are implicated in the average Negro-white intelligence differences. He concluded that evidence had emerged that there are stable ethnic differences in patterns of ability, and that these patterns are invariant across wide socioeconomic differences. Hunt (1967), quoting from the Danish geneticist Johannsen, related the genetic basis for intelligence with environmental influences. He distinguished the genotype which can be known only from the ancestry or progeny of the individual, from the phenotype which can be directly observed and measured. He concludes that although the IQ was commonly treated as if it were a genotype (innate capacity), it is in fact a phenotype (like height and weight), and like all phenotypes is a product of the genotype and the circumstances with which it has interacted. Intelligence, then, is seen as a result of genetic mechanisms and all physical and social influences thereafter up to the time of measurement. IQ is not constant then, according to Bloom (1964); rather, like all developmental characteristics, it is quite variable early in life and becomes increasingly stable throughout childhood.

Strangely enough, Jensen (1969) appears to reverse himself and support Bloom. He concedes that scholastic achievements measured on specific tests show less heritability than scores on omnibus achievement tests. He then concludes that the fact that scholastic achievement is considerably less heritable than IQ also means that many other traits, habits, attitudes, and values enter into a child's performance in school and these noncognitive facts are largely environmentally determined, mainly within the child's family.

Bruner (1966) supports this view in stating that the individual is born with a basic genetic pattern which plays a large role in all his subsequent make-up, and ultimately determines his potential. The environment, however, helps or hinders the individual in attaining this full potential, and determines the extent and kind of change taking place in a genetically given characteristic. He stresses Hebb's and Bloom's work in the importance of early infantile experience in reaching this potential.

Hunt (1967) theorizes that if it is assumed that intelligence is fixed and development is predetermined by genetically inherited characteristics, the intellectual inferiority of children from families of low educational and low socioeconomic status would have to be considered an unalterable condition of their genes. With the concept of man's intellectual development described above, he reasons that there emerges a hope of combating such inferiority by altering the conditions under which the children develop.

There appears to be some inherent characteristics which affect cognitive development. Biller et al. (1969) examined the fact that creativity requires as a necessary condition the ability to fluently form associative elements into new combinations which are in some way useful or appropriate. He discovered that sex role appeared to have an influence on the orientation, preference, and adoption on the formation of new associative elements. Even though sex role can be considered cultural, and thus highly influenced by the environment, it was found that when the inherent physical orientation of the child was brought into sex role conflict, it affected the range of cognitive activity by forcing the individual to find ways of coping with more intense and idiosyncratic needs.

Moran and Sullivan (1967) also felt that empirical findings suggested that there were certain universal and perhaps inherent characteristics in perception. They discovered that children evidenced the same four idiodynamic sets in association structures as found in adult samples.

Witkin et al. (1962) felt that their findings indicated that analytical versus global ways of perceiving are inherent in the young child, and are not correlated with the mother's child rearing or personality patterns. Children who tended to experience their surrounding in a relatively analytical way tended to remain so, as did children who experienced the world in a more global sense. Both approaches have implications for the cognitive development of the child. The analytical child tended to be more conceptual and able to maintain more self-directedness. The global children were more inhibited in their progress toward differentiation.

Although none of the researchers except Jensen attempted to weigh the importance of genetic characteristics to environmental influences, all perceived the two elements as influencing the cognitive level reached through their interaction. There are some inherent mechanisms about which the researchers could not be definite, and these mechanisms develop through interaction of the organism with the environment.

Cognitive Development Involves a Maturational Process of Hierarchical Stages Which Incorporate Characteristics from a Prior Stage

One of the major themes in the research on cognitive development is that cognitive growth occurs in successive stages which incorporate and integrate the characteristics of earlier stages into the next stage. As one stage is completed it is extended and absorbed into the next stage. The stages are thus sequential, hierarchical, and integrated, with the structures that define them developing out of the environment within the bounds set by heredity. For Piaget (Bruner et al., 1966) cognitive development is seen as almost purely a matter of maturation. This maturation takes place by a process of internalization of logical forms; logic first expressed motorically is gradually internalized until it can be used symbolically. Piaget's sequence of development remains the same in all individuals (i.e., stage A must occur before stage B occurs). Although the sequence of stages is invariant, individuals reach various stages at different ages. Piaget assumes that this difference in ages at which stages are reached is due to environmental variations and heredity. He assumes four major stages: the sensorimotor stage, the preconceptual stage, the stage of concrete operations, and the stage of formal operations. The infant moves from the actual motor manipulation of objects in the sensorimotor stage to the preconceptual stage. In this stage between ages two and seven the child makes his first attempts to deal with the relatively abstract in his substitution of symbols for the actual objects. This stage is particularly important because it is the beginning of the ability to recall and manipulate objects known in the real physical world in a symbolic manner without actually performing. The seeds for abstract thought begin here.

Uzgiris (1967) also conceptualizes cognitive growth as a developmental hierarchy growing out of the child's experience with objects. She posits four levels of interactions with objects: 1) a level where few schemata are available and these are applied to all objects indiscriminately; 2) greater number of schemata available but within broad limits the schemata are applied to all objects indiscriminately; 3) shift to interest in objects with ensuing differences in the use of schemata by objects; 4) the last level where schemata applied to an object not only conform to the object's physical characteristics but to its social significance as well. Further, Uzgiris stresess that the schemata became more numerous and more object related with age, and earlier schemata became integrated within later ones. This is in direct agreement with Piaget. There is the definite order in the acquistion of schemata for relating to objects and this order suggests that these reaction patterns form a functional hierarchy in which later appearing schemata presuppose earlier ones.

The work on perception pursued by Bruner also supported cognitive growth as occurring in successive integrated stages. Three-year-olds tended to be strongly guided by the perceptual nature of the task and by a single perceptual feature at a time. As they experience more they begin to take in the totality of a situation and take into account more perceptual features. This is akin to Piaget's description of the child's growth from centration (centering on one clamorous aspect of an object) to decentration (taking the whole into account). The importance of this cognitive movement is that the ability to take in the totality of an experience prevents distortion of reality by permitting the organism to reason with all the facts. The very young child is unable to decenter or include all the features of an experience which might correct the biased conclusion of centering on one aspect of the experience.

Murphy et al. (1962) were concerned with how children cope with newness, strangeness, and the unexperienced. They discovered that children at three years of age demonstrated a role of initial orientation and observation which served as an act of cognitive mastery. By age four or five the children were able to look and appraise a new situation before selecting a portion of the stimuli in the environment to explore or manipulate.

In the application of ego development to cognitive growth, Block (1968) also perceives of incorporating stages in cognitive growth. This research will relate measures of ego structure to a variety of cognitive measures in young children. It expects to demonstrate that the development of ego control structure or ability to delay gratification is required before a child can introspect and employ thought in the service of his goals. Other results indicate that if the symbolic stage of thought is achieved prematurely and/or not integrated with other modes of the experience at earlier ages, it becomes a caricature and will not be stable enough to serve the child in new and novel situations. Terrell (1965) also found that younger children experienced more difficulty with delayed reward conditions than the more mature children in learning tasks.

It would seem then that successful results of coping efforts produce cognitive changes which predispose and equip the child for more efforts. Each experience of mastery and triumph sets the stage for better efforts in the next experience.

Cognitive Growth Occurs through the Motivation To Master the New and the More Difficult

What are the processes by which human cognitive systems evolve? What motivates or stimulates the movement from one stage to another? Elkind (1964) relies heavily on Piaget in his belief that there is a set of functional characteristics or structures through which human reasoning and intellectual growth develop. These structures function outwardly as adaptive coping and inwardly as organization. Again there is the double directedness discussed earlier in this report.

In defining organization the assumption is that every act of intelligence presupposes some kind of intellectual structure, some sort of organization within which it proceeds. In order to understand the reality of the environment the organism must have an internal organizational schema to which the new information can be related, interpreted. and changed. It is the system of interrelationships among the cognitive elements.

In adaptation, Elkind uses Piaget's concepts of accommodation and assimilation. These are the complementary processes of adaptation. Assimilation is the process of the organism taking in from the environment those stimulations which it has some internal organizational capacity to handle, and adapting them to itself. In assimilation the organism takes objective experience and assimilates it without regard to reality. A mode of functioning primarily involving assimilation would be a highly erroneous one in objective and reality terms.

Adaptation is always an accommodatory act as well as an assimilatory one. Accommodation is the impact of the environment on the organism. It is the incorporation of the environmental experiences as they truly exist. When new experiences from the external world impose on the organism, they come into conflict with the old assimilations since the organism has no way of incorporating them wholly. The organism is then in disequilibrium. A pull to react in terms of previous experience or assimilation is challenged by a pull to react according to the reality of the situation. To the extent that the newly accommodated feature of the new experience can fit somewhere in the existing structure, it will be assimilated in that structure. Once assimilated, however, it tends to change the structure in some degree and through this change further accommodatory changes or extensions are possible. Adaptation occurs when there is equilibrium between assimilation and accommodation, when the organism has modified its previous assimilation by the present accommodation, incorporating and mastering the new scheme of things. This progressive disequilibrium followed by equilibrium is the basic process by which intelligence or reason develops, according to Piaget. In its striving for equilibrium, the organism is forced to make certain adaptations which permit it to master the cognitive dissonance.

Murphy et al. (1962) describe the same basic phenomena in different terms. There is a sequence of interest and involvement, and then disinterest in the mastering of a new skill. Anxiety about the new, strange stimulus situation or demand gives way to interest as familiarization begins. Increasing mastery is accompanied by increasing zest and gratifying repetition. As the object and the activity become totally mastered—where there is nothing more that is new—interest wanes. Why do children give up ways of behaving when they have mastered them? Murphy maintains that they do not give it up, but integrate it into larger coping patterns (i.e., interest in mastery of holding up the head wanes, but interest in doing something that includes holding up the head increases). The struggle to mastery has a motivating force of its own which moves the organism to the next challenge.

Blank and Altman's work (1968) on reversal learning as related to cross-modal transfer also emphasizes the importance of the complexity of the task to challenge to learning. They found that more rapid reversal learning was influenced by the modality of presentation. The rapid tactual reversal problem solving following visual training reflected the ease of both training and reversal on the tactual problem. Citing Piaget and Inhelder, they noted that the discrimination or perception of simple shapes in the tactual modality required that the child engage in active sensorimotor exploration. Such exploration is required in the visual modality only when the stimuli become extremely complex. Therefore Blank and Altman suggest that tactual discrimination and reversal were faster not because they were easier, but because they were harder. For tactual recognition to occur, the child is forced to reflect bv feeling both stimuli and comparing them before he makes a choice. The harder the problem, the greater the attention to subtle cues. These findings support the hypothesis that when higher cognitive demands are placed on the young child, easier reversal learning occurs. In order to bring about maximum motivation to engage the task, the problem must be one that the child has some internal organization to engage, but also must be difficult enough to force the child to concentrate and develop a strategy rather than to respond impulsively.

Autonomous Thinking Is Based on a Definite Internal Cognitive Organization Which Permits the Child To Interact Realistically with the External World

We have already cited Piaget's description of the internal organization or schema within the organism which takes in and processes the outside experience and determines action. This autonomous organization interacts with the outside world, accommodating to it, but it has the capacity to determine actions without irrational influence from the environmental and instinctual aspects of the organism. Thus it can respond rationally and effectively to its world. This becomes the ideal inner cognitive organization for dealing creatively with the new experience. One engages it on its own terms without crippling and erroneous influences.

Bruner (1961b) states that much of the problem in leading a child to effective cognitive activity is to free him from the immediate control of environmental rewards and punishments. Learning that starts in response to the rewards of parental or teacher approval or the avoidance of failure can too readily develop a pattern in which the child is seeking cues as to how to conform to what is expected of him. Such children (conformists as to what is expected) are often over-achievers in school, but tend to be lower in analytic ability. They develop rote memory and rely upon giving back what is expected. Thus they tend not to respond as creatively and effectively to a new situation, for they do not know what is expected. In autonomous thinking the child becomes able to use success and failure not as reward and punishment but as information. Bruner concludes that when the task becomes the child's own, rather than a matter of matching environmental demands, he becomes his own paymaster. Seeking to gain control over his environment, the child can now treat success as indicating that he is on the right track. This development has the effect of freeing learning from immediate stimulus control.

Jensen's (1969) statement of the requirements placed upon a child entering school encapsulates the great significance of developed autonomy in the identification of a child's readiness for scholastic performance. He notes that the child must have an attention span long enough to encompass the teacher's utterances and demonstrations; ability to focus attention where called for; ability to comprehend verbal comments and grasp relationship between things and their symbolic representations; ability to inhibit large muscle activity and engage in covert "mental" activity; and ability to persist in a task until a self-determined standard is met.

The Development of Language Is a Function of Cognitive Development Leading to Autonomy

Lenneberg (1967) has defined language as a peculiar adaptation of a very universal, physiological process to a species specific ethnological function, namely, communication among members of the human species. This definition implies that language has a specific environmental and a physical basis, and a definite task. The title of this section also implies that language is highly important in cognitive development. This section focuses on several aspects of the development of language in relation to cognition, with an emphasis on the importance of the development of language to the autonomy of the individual. In a later section the emphasis will be given to the aspect of social relatedness and the development of language.

Three major themes in the development of language as related to the autonomy of the individual appear in the research reports explored:

a. Is there an inherent structure within the individual which facilitates the development of language?

b. Autonomy in language develops as an interaction of maturation and self-programmed learning.

c. The development of language relates to cognitive development.

Is There an Inherent Structure within the Individual Which Facilitates the Development of Language?

Chomsky (Shipley, 1969) has evoked a furor among those using the environmentalist approach in respect to language acquisition by his assumption that there is extensive innate syntactic knowledge to explain the child's mastery of his native language. The environmentalists have clung to the belief that the speech in the child's environment serves as the major impetus and model upon which he bases his speech. Chomsky has shown convincingly that the acquisition of language cannot be accounted for in terms of Skinnerian learning theory. He asserts that the speech of adults is so chaotic as to make learning by inductive generalization virtually impossible. The Chomskian linguists take the position that the child comes equipped with very specific principles concerning the nature of syntactic structure. With these specific principles he can deduce the details of the language to which he is exposed.

This idea that the child is endowed with general organizational and procedural abilities that enable him to form inductive generalization from regularities that exist in the speech he hears is supported by many others. Bever (1965) denies Braine's theory that language is fundamentally acquired by learning and responding to examples in the environment. He concludes that the underlying structures of language derive from the structures of the child. Odom et al. (1968) reject a "parrot" view of language acquisition by showing that such a conceptualization cannot account for the ability of humans to understand and produce grammatical utterances.

Shipley (1969), while conceding that Chomsky presents a good case, does not go along with this idea totally. She questions whether the child brings to the situation knowledge about language or certain general methods for organizing various kinds of sensory inputs. She states that there are two important qualifications that must be considered before we concede that the child cannot learn to talk by listening. These are: 1) A child does not listen in a vacuum; he has information about the speech he hears. 2) The child need not attend to everything said in his presence; he may selectively attend certain properties and thus have a simpler linguistic environment than that observed by the more sophisticated listener. Shipley has presented evidence that suggests that young children are in fact selective in the speech that they attempt to process. They are more likely to listen to commands that begin with familiar words than to commands that begin with nonsense material. She also found that children use repetition for a selective approach to the linguistic environment. The child repeats what is just beyond him in natural speech. Shipley, however, does not discount completely Chomsky's theory. She does admit that she suspects that the child comes equipped with a set of capacities, and also incapacities, that assure that he will respond selectively to the linguistic environment.

Bandura and Harris (1966) are closer to Shipley in their approach. Their recent experiments have indicated that under some circumstances principles for generating novel responses can be acquired and adopted through the observation of others. They examined the effects of certain social learning variables on children's production of particular syntactic constructions. The results indicated that those subjects exposed to a combination of (a) the exemplary behavior of an adult model, (b) reward for correct performance, and (c) attention focusing instructions showed a greater increment in production of both prepositional and passive constructions than did a control group. Odom et al. (1968) replicated the same study and their findings were in agreement with those by Bandura and Harris. Both studies supported the conclusion that the particular combination of social learning variables employed affects the production of certain syntactic constructions that are already present in the language repertory of the child. Neither study offered a direct test of variables affecting language acquisition, but both demonstrate that children with no formal grammatical training possess the ability to identify and utilize existing rules of their language. Thus, Chomsky is not refuted.

Perhaps the conclusion in Odom et al. (1968) is most appropriate. They state that in order for a child to comprehend and use a particular language, it is essential that it be modeled for him. However, if language acquisition is to be comprehensively understood, it will be necessary to focus more on the nature and role of those internal processes and organizations which allow the child to recognize certain patterns of stimulation and therefore interpret what is being modeled.

Autonomy in Language Develops as an Interaction of Maturation and Self-Programmed Learning

To facilitate conceptualization and to emphasize the double directedness toward the inner and outer worlds, this report will discuss the development of language in connection with social relatedness later. In relation to autonomy the general consensus among those studying language appears to be that the development of language is regulated by the maturational process. The child must have reached a point of biological maturity to understand and use language. Lenneberg (1967) states that the foundations of language are to be found in the physical nature of man, his anatomy and physiology. The child cannot produce speech until certain muscles are capable of doing so. In the purely physical sense, different muscles are ready to contract at different times.

Two distinct types of vocalization exist and each has its own developmental history. The first type includes all sounds related to crying, and is present at birth. It is distinct from the second type which includes those sounds which eventually merge into the acoustical productions of speech. This second type of sound emerges after the sixth to eighth week, and begins with brief cooing sounds that regularly appear. In about six months the cooing sound becomes more differentiated. Between 12 and 18 months one word utterances appear. These first single word utterances are best regarded as primary, undifferentiated sentences which incorporate germs of grammar. Understanding of language occurs prior to the production of it. Thus, understanding of language is more relevant to an estimation of language capabilities. We learn to understand a language without the ability to speak it.

Shipley's (1969) work supports this idea that understanding precedes speech. She found that children discriminate more speech forms than they use. Thus a description of the child's spontaneous utterances is an underestimation of his linguistic organization. Comprehension precedes the production of well formed sentences. No doubt production involves skills in addition to those required in comprehension.

Weir (1962) sheds some light on how the child begins to transfer the comprehension skills to those of production in her description of the child's pre-sleep monologues. The two-and-a-half-year child tends to talk to himself a great deal alone in his crib. She calls this the child's inner speech. The child appears to be instructing himself much like self-instruction exercises in foreign language learning. Miller (Weir, 1962) makes the point that the self instruction in the dark is a far cry from the stimulus-response theories of language learning which will be discussed under social relatedness in language development. It is concerned mainly with environmental stimuli; imaginary dialogues with the people he knows or his toys, or addressed to no one in particular. Peirce and Vygotsky (Weir, 1962) support this by referring to inner speech or thinking as taking the form of a dialogue. This inner-directed speech is the basis for overt speech.

In Vygotsky's (Weir, 1962) investigation of inner speech the results indicated that the egocentric talk of children is an intermediate link between overt and inner speech. Egocentric speech is inner speech in its functions; it is speech on its way inwards. In a child's development speech tends to be interiorized psychologically before it is interiorized physically. McNeill (1966) found that grammatical production of speech does not begin before one and a half years and is basically completed by three and a half years. What has transpired has been physical maturation, and integration of comprehension with knowledge of abstract linguistic structure. McNeill's (1966) work also shed more light on the dynamics of comprehension tending to exceed production. The fact that imitation exceeded comprehension suggested that there is a three-span memory association in this development. The early utterance or phonological span is first and longest, comprehension is next, and production next.

Research by MacKay (1968) also supported the idea that autonomy of language development occurs as an interaction of maturation and self-programmed learning. His data showed that delayed auditory feedback causing speech disturbance decreased with age and experience in children. He attributed this relationship to the child's increasing maturity and increasing control over speech as a result of practice.

The Development of Language Relates to Cognitive Development

Many linguistic scholars have pursued the relationship between language and cognitive development. The unifying theme of Piaget's work is the gradual unfolding of the individual's ability to construct an internal model, so as to draw conclusions about the experiences he has and the probable results of possible actions that could be taken on those experiences. The ability to do this depends on the ability to think, which in turn depends upon language. Language effects the transition from primitive and sensory motor manipulations of the child's world to mature and hypothetical manipulation of one's environment. Without moving to the abstract one must still deal in the concrete and physical outside world and thus not attain the autonomy in thinking which frees the individual from the here and now. Language or some sophisticated schema of mental representation then becomes necessary to thinking which is the basis of cognitive development.

Lenneberg (1967) states that cognition can develop to a certain extent even in the absence of the knowledge of any language; however, growth of language does appear to depend on a minimum state of maturity and specificity of cognition, the act of categorization or the formation of concepts. The cognitive function underlying language consists of an adaptation of the process of categorization and extraction of similarities.

Internal Control of Behavior Is an Outgrowth of Early Autonomy

By the age of three years the basic patterns of autonomy have been established for each child. These patterns have momentous consequences for the future control and construction of actions by the child. One of the major consequences stemming from the degree and nature of autonomy achieved by the child concerns his future acquisition and use of internal controls over his own behavior. One facet of such internal control is the ability of the child to show self-restraint. A second aspect pertains to the child's capacity for being self-critical.

Self-restraint is a general concept encompassing such phenomena as ability to tolerate delay, ability to resist temptation, and ability to develop internal control over reinforcement. It is notable that most studies concerned with self-restraint and its development are conducted with elementary school children rather than children five years and under. Although this fact may possibly be an artifact in the sense that researchers may have easier access to school children than to preschool-aged children, it seems more likely that the years between three and five contain only the beginnings or crude forms of self-restraint. The details of capacity for resistance to temptation, for example, are easier to find in school children because all or most of them have fairly well developed patterns of self-restraint, whereas preschool children do not.

In the few studies on preschool children directed toward the origins of self-restraint, a general theme seems to emerge. Children who have had warm, loving, nurturant, satisfying, helpful parents tend to develop greater degrees of self-restraint than do children who have had less fulfilling parents. In general, children who have been enabled to grow as actors, relating inwardly and outwardly without contradiction, binding themselves to others in mutually gratifying relationships, seeking newness and being open to it, are children who develop most the internal controls of behavior discussed as self-restraint. Murphy et al. (1962) observed that the autonomy allowed in the feeding situation during the first six months correlates with the capacity to use substitute gratifications, with tolerance for frustration, resistance to discouragement, and the tolerance of temporary regressions. They also report that the child who had a wide range of pleasure resources could more easily find or accept a substitute when frustrated, and awareness of this capacity contributed to tolerance of frustration. They say that the range of resources for gratification has its foundation in a general level of drive, a capacity for investment in the environment; in tendencies to respond to many rather than few types or modalities of experience with pleasure; and in early gratifications and frustrations in specific areas.

Katkovsky et al. (1967) studied parental antecedents of children's beliefs in internal and external control of reinforcements. They demonstrated that children's beliefs in internal control of reinforcement are related to the degree to which parents are protective, nurturant, approving, and nonrejecting.

Against this view, Burton et al. (1961), who studied antecedents of resistance to temptation in four-year-olds, claim that there is no simple relations between "permissive" or "severe child-rearing practices and resistance to temptation. They did find, however, that a child's activity level up to two years of age predicted resistance to temptation, the more active children being more able to resist. This finding is consistent with the general theme that children who are enabled to develop as actors are children who adopt greater internal controls over behavior when autonomy has been established.

In respect to self-criticism as a form of internal control of behavior, Mussen and Distler (1960) support the theme established with respect to self-restraint. They showed that highly masculine boys live in relatively permissive, nonpunitive family climates, and these same boys are also high in the development of conscience.

Aronfreed (1964, 1969) and Grusec (1966) tie the development of self-criticism to punishment and relief from punishment. Self-criticism partakes of self-restraint and of self-punishment. Aronfreed believes that the learning of self-criticism embraces two processes: the attachment of anxiety to the response-produced cues of transgression through their repeated association with punishment; and an accrual of the intrinsic reinforcement value of the self-critical response through its connection with an attenuation of anxiety. If the child can diminish his own anxiety, relieve himself of some of the anticipation of punishment through self-criticism and consequent self-control, he will learn the positive value of this self-criticism. Certain components of the punishment acquire anxiety-reducing value because they function as signals which mark the end of the period of anticipation. Aronfreed includes in his analysis the notion that a parent's or model's nurturance toward a child does facilitate the child's reproduction of the model's verbal criticism. That is, self-criticism is more likely to develop in connection with social relations binding the child to nurturant adults. Grusec demonstrated with nursery school children that a model who was very rewarding to the children was more effective in producing initial self-critical responses in the children than was a model who was not rewarding to them.

There Are Developmental Stages for Social Attachments

There are very few studies concerned with the unfolding of social attachments. Two and three decades ago a vast body of literature was developing about children and their egocentric and cooperative relations with parents and other children. That sort of thinking has almost disappeared from the forefront of work on the first five years of life. The scholars in the field seem to have been so impressed with the development of *autonomy* in social relatedness that they have had little interest in autonomy in *social relatedness*. The topic of separation has been much discussed, as we will see in a later section, but that is not the focus of our attention at this point.

Ainsworth (1963) has given an overall formulation that seems useful. She notes that the infant passes through a phase of indiscriminate social responsiveness, to a phase of attachment to the mother, and then quickly to an expansion of the capacity for attachment from just one figure to other figures, such as the father, other adult females, siblings, and so forth. Schaffer (1963) concurs with Ainsworth and adds that indiscriminate attachment behavior seems always to precede specific attachment. Yarrow (1967) believes that the sequence of focused relationships parallels closely the developmental sequence of basic perceptual and cognitive functions. We have seen reference to this issue in connection with the development of the concept of object constancy at nine months of age and the tie to the mother and fear of strangers which seem to arise around this age period.

Ainsworth, using a series of signs of attachment, delineates the development of infant-mother interactions during the first year of life. The signs of attachment include differential crying, differential smiling, differential vocalization, visual-motor orientation towards the mother, crying when the mother leaves the room, following, scrambling, burying the face, clinging, exploration from a secure base, lifting arms in greeting, and clapping hands in greeting. At about eight to ten weeks the child can discriminate the mother from other adult figures. Infants at this age accept other caretakers than the mother quite readily. During the second quarter there emerges crying when the mother leaves the room. During the third quarter of the first year the child begins to follow his mother. And in the fourth quarter the fear of strangers comes into being.

Schaffer suggests that attachment to a single object comes at about seven or eight months when the child is developing the idea of object constancy. Fear of strangers seems to come about a month later and is a separate issue. Schaffer emphasizes that attachment to the mother is not a simple function of the prior mother-child relationship. There are very few instances in which the mother is the only person to whom an infant under twelve months of age shows attachment behavior. Indeed, while the mother is commonly the person toward whom the specific attachment behavior is directed, she is not always the object of greatest attachment. This phase of specific attachments seems to have a peak at eight to ten months.

Yarrow specifies stages in the unfolding of focused relationships during infancy. First comes social awareness, discrimination of people and objects. Then follows active recognition of the mother. After recognition of the mother comes preference for the mother over other available figures. Then is seen the confidence relationship, when the child can wait in confident expectation with special reference to the mother. He has now accumulated a sense that the mother will return. Next can be seen evidence of overt separation anxiety. After this comes the sixth stage of active differentiation of strangers. Finally, the child manifests stranger anxiety. These various stages can be taken as indicative of different levels of object relationship.

Pines (1969) reports that White and his coworkers at Harvard are finding that mothers are not as distinguishable in their interactions with children during the first year as they are between the first and third years of age. The "supermothers," "smother mothers," "almost mothers," "overwhelmed mothers," and "zookeeper mothers" take on these special characteristics when the child is out of the initial attachment phases and into the period when he is creating relationships on grounds more particular than familiarity and contiguity.

We are cautioned by this material to avoid overestimating the significance of one continuous caretaker for the healthy unfolding of a child's life. There may be times when the child himself prescribes that one caretaker shall be the center of his whole existence, and some children, usually insecure ones, may be quite demanding upon one caretaker. But it is not necessary to generalize from the one stage of development to the caretaking environment in its entirety over the first five years, and it is not necessary to apply to the average child the demands from the insecure one.

It may be that we have in the past collapsed two ideas into one in our preoccupation with single best caretakers for children. We may have taken the fact that the child at some point prefers a single adult and fused it with the fact that an adult who knows the child's individuality is more capable of creating mutually fulfilling relations with him. A parent who has had contact with a child from birth may be sensitized to his activity level, his quirks and eccentricities, etc., and so may be more able to engage in productive transactions with the child. By the same token, however, the parent may not truly know his child or may believe that the child at two is identical with the child at six months. Past experience with a child is valuable only if it fosters better present transactions. In discussions on the problems of separation during the day for nursery school experience, of institutional care or group living for very young children, the distinction between the child's phasic attachment to a single adult and his need to enter many happy, reciprocal relations is well worth maintaining.

The Child Learns the Principles of Social Relatedness from the Social Relations He Experiences

Children acquire a refined sense of the way human relations unfold in their environment, including their culture, less through direct tuition about these ways than through the series of concrete encounters that make up their existence. Teaching children manners, proprieties, the uniqueness of their culture, and so forth is a subject that is hardly considered in the writings under the review. The probable reason for this is that such direct tuition is generally inapplicable to children five years and under.

Direct tuition seems not to be effective as a primary socializing technique. Meers and Marans (1968) note that in group care in Communist countries there has been much effort directed toward teaching children at a very young age to be responsible to the collectivity and to gather their preferences around collective experiences. They observe that such tuition is running into trouble and is hardly as successful as its proponents would desire. There is currently movement away from such an emphasis in tuition. Crandall et al. (1960a) attempted to ascertain whether mothers train their children directly to engage in achievement behavior. They found no relationship between independence training and achievement behavior. Lenneberg (1967) is insistent that programmed training is ineffective in hastening the rate of language acquisition.

The more generally held position is that enunciated and studied by Baldwin (1965). He argues that the controversy between cognition and personality adjustment in preschool educational programs is a false dichotomy. He says that cognition and the organization of human behavior are related to each other, and unless we restrict cognition to intellectuality of a deductive nature, or of a nature in which facts are stored, the distinction between the child's concepts of interpersonal relations and his concepts of other issues is not great. He says there are many ways that external information can become incorporated in behavior and some are best described as noncognitive. Accordingly, he has been studying and showing that interpersonal relations have an underlying code, much on the order that F. Heider has written about. The child learns some of these codes from direct transactions; some he learns in his free play situations; others he learns from confronting a model; and still others from explanations (direct tuition) that are near to the understanding capacity of the child but that stretch him.

When authors deemphasize direct tuition in respect to the socialization of the child concerning social relatedness, they are careful not to suggest that adults are irrelevant or do not teach indirectly through the nature of the engagements they have with children. Baldwin (1965) and Deutsch (1967, 1968) make the point that free play is less effective for the child's learning of cognitive and personal rules when taken by itself. It is valuable to have the adults engaged with the children around tasks and materials. Deutsch notes, for example, that disadvantaged children displayed an active learning style around relatively simple tasks, but adult intervention seemed desirable in supporting in these children an active learning style in confronting more complex tasks.

The major source of learning about the rules of human relations is in direct experience of them. Hess and Shipman (1965) quote Bernstein with approval and addition, who argues that the structure of the social system and the family shape the child's code for human relations as well as his cognitive and language development. In deprived homes, where the control system precludes tendencies for the child to reflect, to choose among alternatives, there is promotion of impulsiveness, of dealing with immediate and disconnected actions. The child develops rules in respect to the construction of social relations that are consistent with these experiences. Marans et al. (1968) are building their research on the assumption that parental modes and ideals are understood and internalized in the course of preverbal development (i.e., before direct tuition can take place). Witkin et al. (1962) studied many attributes of children in respect to the attributes of their mothers on the grounds that the kinds of experiences mother and child would create together would stem significantly from the mother's understanding of human relations and would result in encounters that would shape the child's ways of dealing with the world. They suggest, for example, that mothers of children with a more global field approach have had the kinds of relations with their children which tended to inhibit the child's progress toward differentiation; mothers of children with a more analytical field approach have interacted with their children in a way which tended to foster the development of differentiation in their children. They go on to assert that self-assured and self-realizing mothers tended to create interactions that fostered differentiation. More differentiated mothers were seen to have more differentiated children.

In their treatment of autistic children, DesLauriers and Carlson (1969), completely relied on the idea that the child would start learning not by being taught anything special, but by being exposed, in an atmosphere of affective and sensory stimulation, to a wide variety of experiences. The point is not that the adult fails to teach the child; rather, teaching is not equated with explicit attention to introducing information, ideas, rules, or procedures from the outside apart from the concrete situations and interactions that attract the child. When the therapist plays with the child there are materials, tasks, and goals that facilitate or define the play. The child acquires his new understandings of how to be in relation to others and to things through these direct experiences.

A special case of learning through direct encounters with the world is the process of modeling. This subject will be discussed at greater length later in this report. Here we may note that the child learns in some degree from observing what leads to what in human relations. He is capable of this type of learning only after he has clearly separated himself from the environment and has established a sense of his own autonomy, so that much of the work on this observational learning is relevant to children only three years old and more. Bandura et al. (1963) illustrate this in children from three to five years of age. They show that these children were selective in what they imitated. The children were more likely to imitate models who were rewarded for their behavior than models who were not rewarded. The success of the model's behavior was a crucial factor in determining the degree to which an aggressive pattern of behavior was reproduced by the child observers. Similarly, Aronfreed (1969) notes that children of a preschool age are more likely to imitate the expressive aspects of an adult if the adult is cast in a nurturant role with respect to the child.

Biller (1968), Munroe (1968), and Munroe and Munroe (mimeo. mss.), suggest that the child learns about masculinity and its forms and possibilities through his direct encounters with a masculine figure in the home. Biller says that the father's behavior in the home is very important to the child's development of a masculine approach to the world. The absence of a father is most influential in respect to the understanding of masculinity rather than to performance in a manly way, probably because the manliness of a boy is heavily determined by his constitutional dispositions. Munroe makes the case for experiences determining the child's understanding and behavior in social relations in respect to couvade in adult males in a society where couvade is practiced relatively frequently. He shows that the absence of adult males (not simply the absence of fathers) during the early years of the child's life is vital to the child's sex-role development. The longer the period during which an adult male was absent from the household environment of a very young child, the more likely the child would be to observe intensive couvade practices as an adult. That is, more imitations of female childbearing experiences are seen in adult males who had been subjected to prolonged absences of adult males during their early years.

Cognitive Development Is Influenced by Social Relatedness

The focus of this section of the report is on the relationship between cognitive development and the life experiences of the child, as he relates to his social and physical environment. It has been stated before that cognitive development is a function of the interaction between the genetically inherited characteristics of the child and his life experiences. Life experiences are influenced by the social and physical environment including where we live, with whom we associate, and what attitudes and beliefs we share. The social environment is highly influenced by the social class or race of which the child is a member. Although it cannot be stated that all people within a certain social class practice certain habits, the concept of social class appears to have some utility to the research examined in connoting various styles of life. Cognitive development is highly influenced by the child's interaction with his social and physical environment.

The following subthemes seem to be evident:

a. Cognitive development is affected by the child's relationship with other individuals.

b. Cognitive development is affected by socioeconomic status and race.

Cognitive Development Is Affected by the Child's Relationship with Other Individuals

What are the ingredients in the interaction between the child and the important others in his life which foster cognitive growth? This question appears to be implicit in much of the work on cognitive development. Most of the studies stress the importance of early childhood experience in determining later demonstrated intelligence, and they all stress the importance of the relationships with parents, especially the mother, during this period. Kohlberg (1968) stated that a child's cognitive modes are not carbon copies of adults', thus they are not learned as such from adults, nor from innate patterning. The structural growth in cognitive modes depends on experience. Deutsch (1964) attempts to delineate some aspects of these experiences that influence the development of intellective functions in children. Family cohesion was one strong modifier of cognitive performance. This did not necessarily mean a home where the father was present. It did mean a family functioning as a group which gave maximum recognition to the needs of the individual while still meeting the group needs. Opportunities for direct and enjoyable contact with parental figures are listed by Bloom (1964): opportunities to solve problems, encouragement to think clearly about a variety of issues, and encouragement to attack problems differently and figure on the outcome. Reinforcement of clear and logical reasoning by adults is also important.

Early cognitive experience in the home was also stressed by Gordon (1969), who encourages both the mother and the child to enjoy themselves at learning play centers. Schaefer's (1969) analysis revealed significant correlations between methods of child care and the child's behavior and mental test scores. Child neglect correlated highly with maternal uninvolvement, and both child neglect and maternal hostile uninvolvement correlated significantly with low mental test scores. The data suggest that the quality of early maternal child care has significant effect upon a child's adjustment, task-oriented behavior and mental test scores at thirty-six months. Kagan (1969) suggests that long periods of play are important between mother and child in which thought processes, no matter how primitive, are rewarded. His theory of mental development states that the specific absence of these experiences will retard mental growth and lead to lower IQ scores. Block (1968) also emphasizes cognitive training procedures for parents to use early with the child in a fun setting.

Baughman and Dahlstrom (1968) set forth the proposition that the home has an advantage over the nursery school, because it brings the family together and involves the parents in teaching the child. They found a strong relationship between certain psychological factors in the home and the intellective growth of the child. Trustfulness, cooperativeness, self-sufficiency, and emotional warmth were related to IQ change from the first to third grade. Also related were tenacity, positive reactions to success, cheerful mood, and the tendency to be able to become absorbed in school tasks. They saw as family goals in relation to the child's cognitive development the ability to stimulate the natural curiosity of the child, and to demonstrate by one's own behavior the reciprocal attitude of being eager to supply any information that the child might be interested in; engagement of the mother with her child's education; provision of a warm interpersonal situation; and respect for the child and for the difference between children.

Fineman (1962) supports the importance of the mother in cognitive development with her descriptions of the correlation between the children's and mothers' active imaginative life. Children who used very little imaginative play had mothers possessing little active imaginative life. The real importance of this was the finding that children who used imaginative play early were able to develop more adequate mastery and acceptance of reality without recourse to rigid and regressive mechanisms. Thus they were able to deal more effectively with conflict-ridden areas.

The central quality involved in the effects of cultural deprivation was a lack of a mother-child communication system, according to Hess and Shipman (1965). They found that the growth of cognitive processes is fostered in family control systems which offer and permit a wide range of alternatives of action and thought. Cognitive growth is constricted by systems of control which offer predetermined solutions and few alternatives for consideration and choice. Pavenstedt (1965) feels that a normal psychological development, even without intellectual stimulus, permits children from stable families to adjust and learn. In contrast, retardation and deviation in the psychological development of children in disorganized "multi-problem" families interfere seriously with learning.

The stimulus response studies and the social reinforcement studies also shed some information on the effect of social relatedness on cognitive development. They point up the significance of the social relations with the important people in the child's life as opposed to the person as a model for the child. The child does not merely imitate the behavior of his parents or teacher, but he abstracts from their behavior that which has meaning to him, and a strong influence on what has meaning to him is his relationship with the person involved. Cowan (1967) in his study of the function of the stimulus, experimenter, and subject, examined the responses elicited in free play where a child is encouraged to talk about toys or pictures. He discovered that most studies do not adequately consider the importance of the stimulus and the experimenter in evaluating the variance of the results. The particular examiner and his relationship with the child should be thoroughly evaluated before any precise statement of individual differences is made.

Baer's (1964) writing on social reinforcement is implicitly based on the fact that the child has a warm and desired relationship with his teacher. The teacher's attention then can be used as a positive reinforcer to encourage the child to do what the teacher wishes. If the relationship with the teacher, who withdrew attention when the child did not perform as she wished, had not been positive and desired, the reinforcement principle would not have worked. Although the whole process sounds exploitive, the quality of the relationship is what gives it impetus.

The importance of social relatedness is underscored in Wilson's (1966) work. According to him, measurements are being made which should make it possible to estimate changes or growth in the child's verbal and intellectual development in the way parents relate to children, and in the parent's knowledge and beliefs about child development, and desirable socialization practices.

Cognitive Development Is Affected by Socioeconomic Status and Race

Many of the studies relate the sociocultural background of the child to his life experiences, which in turn affects his cognitive development. One basic assumption seems to be that the child is not totally free to create his own environment, even though it is granted that he does influence and control it within limits. Despite this, however, most of the studies assume that the child's environment is largely determined by the adults with whom he lives and is involved. The family and the social group teach the child their class behavior. Social class and race is active in creating the child's life experiences in that it influences what a child has the opportunity to experience. It also influences what a child will take out of an experience in terms of interpretation, values, and practical implications.

The other assumption that appears implicit in these studies has been previously described in this report. This is the relationship between the effect of the environment and the constitution given to each individual on the cognitive development of the individual. The child is born with a basic genetic pattern which plays a large role in all his subsequent development. This basic nervous system and physiological make-up ultimately determine his potential. Without taking a position on the relative influence of heredity and environment, the studies analyzed seem to assume that the environment is a determiner of the extent and kind of change taking place in the genetically given characteristic because it hinders or enhances the characteristic in reaching its full potential. This is not a stimulus response situation, however, but one in which the child does exercise some autonomy in his relationship with his physical and social environment. There is interaction between the two (i.e., double directedness).

Deutsch (1967, 1968) is engaged in a long range investigation of the developmental, psychological, and social determinants of learning and intelligence, with particular emphasis on the role of environmental influences. The major focus is on the social and academic problems of environmentally disadvantaged children. In one of the first research projects by his group, black and white children from various socioeconomic classes were tested to determine what factors were related to the development of linguistic and cognitive abilities. This study revealed that the most significant variations in the child's verbal and cognitive growth were directly related to the child's socioeconomic background, rather than to his race. Therefore, in his applied research program, Deutsch has committed himself to bridging the discontinuity between experiences of the disadvantaged environment and the middle class culture of the schools. He has found that the decrement associated with race, however, begins later and is more cumulative and pronounced among the Negro children. The implication is that the black child may be sequentially disadvantaged.

The sequentially disadvantaged theme appeared in several of the studies. In an earlier Deutsch study (1964), he summarized that there was a linear relationship between the socioeconomic status and cognitive performance level for both white and black groups. Within this linear relationship the absolute increase in IQ is greater for the white group than for the black. The interpretation put forth was that the influence of racial membership tends to become increasingly manifest and crucial as the social class increases, though not in an absolute sense. Color and minority status result in much less participation in the cultural mainstream by middle-class blacks, while lower socioeconomic status tends to operate similarly for both races. Black life in this society is more homogenous, making it extremely difficult ever to really match racial groups meaningfully on class status, since the children's social experiences are so different. The data indicate that fewer variegated family activities such as eating out or taking trips occur in the middle-class black group relative to the white middle class. Since Deutsch, Bruner, and Kagan have hypothesized that lessened physical stimuli can hamper the child's intellectual development, this would have far ranging implications. Richness of the environment would also be constrained in lower-class groups of any color. Economic constraints would be active in the acquiring of a large variety of materials and objects which are not necessarily related to survival or need. As a consequence, these children are less likely to come into contact with a wide variation of physical materials and objects than are children where there is marginal income to spend on things that are not needed.

Golden in one of his earlier studies confirmed the findings by other investigators that social class differences in intellectual development are not reflected in infant test scores during the first two years of life. He concluded that cognitive development and the environmental conditions and mechanisms which facilitate intellectual growth may be discontinuous between the preverbal and verbal periods. Social class may not have influence on the intellectual development during the preverbal period, but plays an increasingly important role when learning is mediated more by language. Home environment of children from socially disorganized slum families may be adequate for the development of sensorimotor intelligence and concrete thinking.

One study of Golden and Birns (1968) confirmed that social class differences in intellectual performance have not been demonstrated until the third year of life. Class does not appear to have a measurable effect on the sensorimotor development but does seem to have a pronounced effect on the development of verbal IQ beginning when language enters the picture. The implication is that in the lower class home, there is a deficiency in the language.

In his many studies on cognition, Kagan (1968), found that social class could be correlated with fixation time in his measurement of perspective. Hertzig et al. (1968), in an examination of cultural and class influences on cognitive development, compared three-year-old Puerto Rican children from different social classes. The middle-class children were clearly more responsive and curious. The lower socioeconomic group of children, though friendly, were not task oriented and were insufficiently focused. This cultural difference was also pursued by Suchman (1966) in her two studies in Nigeria. The Nigerian children tended to prefer form over color, contradicting results obtained from the American children at certain ages.

Most of the studies revealed some differential influences of social class on cognitive development of children in the several class levels. Social class placed certain constraints on the life experiences of the children which in turn influenced their degree of cognitive growth. To summarize, the most compelling findings implicate the permissive-restrictive environment in the home, the parental attitude toward education, the quality of the parent-child relationship, and the exposure of the child to the wider world, as being significant in the early cognitive development of the child. The social class and racial environment of the child have great effect on the quality of these life experiences.

Language Development Is Influenced by Social Relatedness

The use of language, as discussed previously, is of prime importance in the intellectual maturation of the child. It is the basis of all hypothetical thinking. An individual who does not have mental representation or words to manipulate in his mind is limited to actual or motor manipulations, and thus cut off from abstract thought. The argument has already been delineated concerning whether language is a result of the child's imitating an environmental model, or whether the child has an intrinsic structure to understand language. The majority of the researchers on language development, however, try to incorporate both ideas. They conclude that in order for a child to comprehend and use a certain language, it is essential that he have had experience with a model. However, there does seem to be some internal process which allows the child to recognize certain patterns of stimulation and structure and interpret what is being modeled. Insofar as the child needs a model, he needs social relations for his language development. As with cognitive development, the child's social environment most effective in the development of his language would appear to be the daily face-to-face relatedness with his immediate family, and the interaction with his larger socioeconomic and racial environment. This section of the report, then, has two subthemes:

a. Development of language takes place through the child's interaction with immediate individual models.
b. Development of language takes place through the child's interaction with the larger socioeconomic and racial environment.

Development of Language Takes Place through the Child's Interaction with Immediate Individual Models

Language serves two functions for the individual. It facilitates communication and it facilitates thinking cognitively. Vygotsky (Kohlberg, 1968) believes that speech and thought have independent ontogenetic roots, but fuse early in development and the subsequent fate of thought is determined by the fact that thought in the older child is a structure of the interiorized speech mentioned before. Private speech becomes a way station between overt speech and interiorized inferential thought. The reproduction and use of speech is very important to an individual's effective thinking and behavior.

Colby (1968) sees language acquisition in the normal child as growing out of interactions with people. Brown and Fraser (1964) support this approach in their description of the child learning—from his family, his friends, television—a large sample of the sentences of a language. With this sample he induces an implicit grammar on the basis of the regularities he selects. Hearing words in their proper context from those who speak the language is the most effective model for speech. This implies a prerequisite of close involvement with those who speak the language, and the freedom to engage them in rudimentary conversation. Parents' expansions of the child's vocalizations (as described by Brown, 1964) are related to the child's discovery of the local features of the language. The interplay is thus mutual confirmation. When the parent does not expand, the child must work out the appropriate manifestations of the linguistic universals on his own. Thus there is slower development. The time factor is also involved in that children who are talked to a great deal in early infancy talk sooner and better than children who are not. Early verbal stimulation is important in that it gives the child a larger sample from which to abstract his rules.

McNeill's work (1966) helps to clarify the role of imitation in language development. He states that imitation is not the means by which new forms are introduced into a child's grammar. Imitation is not important in language development as such. Rather, imitation is a form of play. Thus the fact that the child imitates his parents suggests that he is playing with his parents, not learning from them but by interaction with them. He is not just a passive imitator of the model: the stimulus response model. Katz (McNeill, 1966) describes this life experience of interaction in relation to language. He sees the role of experience as primarily providing the data against which predictions, and thus hypotheses, are judged. Experience serves not to provide the things to be copied by the mind or tongue, but to help to eliminate false hypotheses about the rules of language. The role of parental speech then becomes essentially directional; it provides the child with some basis for choosing among the options offered by the linguistic universals.

Development of Language Takes Place through the Child's Interaction with the Larger Socioeconomic and Racial Environment

Hess and Shipman (1965) viewed the acquisition of language in terms of the larger social environment. They hypothesized that the structure of the social system and the family shaped communication and language. Language in turn shapes thought and cognitive styles. They saw language as part of social behavior. This idea was also advanced by Brown and Fraser (1964) in their suggestion that the rules of grammar are cultural norms, and like other norms, they are descriptive of regularities of behavior in the community and prescriptive in recommending this behavior to new members.

Kagan (1969), Odom (1967), Hess and Shipman (1965), Hunt (1967), and many others studying the development of language have found class difference and some racial difference in the life experiences of children which might promote the development of language. In the child-rearing patterns of the different social classes, the middle-class children are encouraged to be more verbal and learn the nuances of language. Parents talk to each other at length, as well as to the children. The children are encouraged to discuss experiences, and self-expression is highly valued. Verbal discussion rather than action is the predominant mode of settling disagreement. Middle-class mothers tend to "talk" to their children earlier and more consistently than do lower-class mothers. There is much opportunity to hear the language used, and to hear it correctly used.

McNeill (1966) found that the lower-class, nonacademic families in his study were constricted in their use of language. Children failed to learn the names of objects and developed less facility for expressing ideas and feelings. Golden and Birns (1968) found no socioeconomic differences in language development during the first two years. However, they found that social class differentiation is evident later when the test items are more abstract than concrete. The lower socioeconomic group tested lower. Deutsch (1968) found a high correlation between social disadvantage and poor language development. He further found that the deprivations associated with socioeconomic class are more cumulative and pronounced in black children.

This approach is opposed directly by Baratz (1969). She speculates that the black child does have a language of his own. This linguist argues that this language differs from standard English but has its own logic and internal consistency. She has named it "Negro-non-standard English." The child does communicate and has learned the rules of his linguistic environment. However, because he is not seen as speaking a different language from standard English, he is penalized, and the results of any tests or evaluations are taken as manifestations of underlying ability rather than the confusion of language differences.

This barrier of a different language is not only limited to black lower-class children. Lawton (1968), in his discussion of the work of Bernstein, has stated that working-class children have only restricted (public) language which limits their ability to benefit from formal education as it is being presented at present. Elkind (1969) also cites Piaget as warning that language is deceptive with respect to thought. Teachers in Elkind's study of inner-city children were often fooled by the language handicaps of their students into thinking that they had much lower mental ability than they actually possessed. The implications of this idea for education is far-reaching. If the lower-class child, especially the black ghetto child, is coming to school with a different language system, how can he learn to read if reading for him is in actuality "translation" from standard English to his spoken or public language?

It would appear that these children have functioned as we have described, and selected enough samples out of their linguistic environment to induce the rules of grammar and develop language. However, in taking samples from their immediate environment, the children have developed a certain mode of communication which is at variance with that of the major culture. The child's existing system of social organization in terms of previous experience does not serve him in the larger social system. The child is related to the subsystem, but does not have the experience which would permit him to maneuver autonomously in the larger, and to him new, society.

Young Children Frequently Imitate Adults

The fact is clear that young children, from their earliest weeks of life onward, frequently imitate adults. Sooner or later in any discussion of young children, the idea of imitation appears as an explanatory notion. Yet the interpretation of imitation varies considerably from one writer to the next. Disagreement centers not around the commonness of imitation found in young children, but around the meaning or sense of it. Some theorists see imitation as a basic learning device by which the child comes to comprehend and adopt that which is initially in his environment. Imitation is seen in its social-relatedness form. Others see imitation as a form of play in which the child uses his repertory of talents and behaviors for self-development and entertainment. Imitation is seen in the framework of the child's autonomy.

From the point of view established in the previous pages of this report, both aspects of imitation must be taken into account. The child is autonomous in his social relatedness and he is socially related according to his unique, individual form. When the child is imitating, he must obviously be relating to other people who either are immediately present in his environment or whom he has seen in previous exposures. We cannot call an action of a child an "imitation" unless it bears some correlation with the actions of another person. At the same time, when the child is imitating, he must be utilizing that which is a part of himself. At the least he is exercising his past accomplishments.

The autonomous element of imitation functions as the child's use and expansion of his prior accomplishments and established capacities. The child engages in self-development through imitating others. Hunt (1965) quotes Piaget with approval when he asserts that imitations begin with activities within the child's repertory. He speaks about the attractiveness of objects with emerging recognitive familiarity as motivating for those responses called autogenic. Babbling appears to consist of ear-vocal coordination in which the child manages to gain auditory control of his own voice by making the sounds he hears when he vocalizes. The same thing holds for hand watching and foot watching in the four-month-old infant. Hunt suggests that this may be generalized to include imitation. The child imitates to present himself with emerging capacities that are increasingly familiar to him. When he has mastered them, he will no longer imitate in respect to them.

Bruner (1966) takes the same stance. He asserts that man is seen to grow by the process of internalizing the ways of acting, imaging, and symbolizing that exist in his culture, ways that amplify his powers. He then develops these powers in a fashion that reflects the uses to which he puts his own life.

Bandura (1965) has observed that the child with a narrow band of responses available to him from his previous experience may display only fragmentary imitation, since imitation depends upon the use of his own repertory. For instance, children in nursery school, with higher motor than verbal repertories, tend to imitate more motor than verbal facets of a model's behavior.

The fact that for a child's development autonomy in imitation must be connected with social relatedness is established in a negative way. Autistic children do not imitate. White, DeMyer, and DeMyer (1964) list among the identifying attributes of autistic children that they fail to imitate. Ornitz (1967), says that history also shows these children are unable to imitate others at every age and stage of development. He suggests that the capacity to imitate may depend on stable percepts of iteration and reiteration of stimuli. These children do show in great detail much isolated behavior, such as whirling, turning, finger play, etc. All of these may be understood as autonomy of a distorted form. These children, thus, are capable of autonomous activity, but they are lacking in precisely those sorts of autonomous activities that are built upon social relatedness and that tend to increase the child's powers in respect to further social relationships.

Pavenstedt (1965) reports the presence of imitation in nursery school children which suggests social relatedness of a very primitive form. She noted that children from very low lower-class families used words imitatively and often quite out of context. The imitation that appeared in the behavior of these children was not facilitative of development either in autonomy or in social relatedness. It was a means of getting by in life.

The child's imitation of others is not haphazard; he selects that which he will try out. Bandura (1962) remarks that in order for imitative responses to occur, the model's behavior must be within the perceptual and motor capacity of the observer. Once this condition is met, the child will create novel behavior out of imitations. He does this by imitating two models; by amalgamating what he takes, he is often innovative. Elsewhere, Bandura et al. (1963) document that children exposed to two adult models in interaction with each other tended to imitate both adult models rather than one.

In the child's selectivity in respect to imitation, positive experiences play a major role. Bandura et al. (1963) show that the child will imitate the model who dispenses the rewards serving as a primary source of imitative behavior. They reason that this refutes Whiting (1960), whose status envy theory predicts that children will imitate a rivalrous adult. They agree with Mussen that the child tends to imitate the controller of resources, the rewarder. Mussen and Distler (1960) propose that rewarding father-son relationships are crucial to the child's imitation of and identification with his father. The boys who develop masculine identifications see their fathers as warm, nurturant, and affectionate. Mussen and Rutherford (1963) make a similar observation with respect to girls identifying with their mothers. They found that girls will identify with mothers they perceive as nurturant, warm, affectionate, and rewarding. They add that girls are also sensitive to the mother's attitude and relationship with herself in identification. Hamilton (1967) expects to examine the influence of a model's attraction for the child and the acceptability of the behavior engaged in by the model as influences on what the child selects to imitate.

Mischel and Grusec (1966) investigated the effects of the model's rewardingness or use of noncontingent reinforcement and his control over the child's future resources on the degree to which the child rehearsed and transmitted behaviors displayed by the model. Almost half of the children in the study did not rehearse or transmit either neutral or aversive behavior, thus demonstrating a selectivity in regard to what they would imitate. The authors found that both reward of child and control over the future resources of the child affected his rehearsal of neutral behavior, but that aversive behavior was imitated (rehearsed) only when the model had high control.

There is considerable difference of opinion about whether imitation of a model is a major determinant of self-restraining, self-controlling behavior. Murphy et al. (1962) and Lane (1968) suggest that it is one among several determinants. Murphy and her collaborators refer to one child who "learned" to cope with more acceptable ways of behaving than was her initial inclination through example, identification, receiving rewards for controlled behavior, and getting direct satisfaction from the results of her methods. She could adopt the behavior of adults more readily when she was consistently being gratified and had a sense of well-being. Thus, imitation was one element in learning self-control. Lane asserts that in early childhood learning is ego-centered, is a process of developing identity, and this is maximized through identification with a love object. Modeling is thus taken by her to be a very important process in early learning.

Witkin et al. (1962) believe that direct imitation of a mother by a child may play a relatively unimportant role in the process of the development of controls.

Aronfreed (1964); Bandura, Grusec, and Menlove (1967); and Whiting (1960) take the opposite position. Imitation is vital to the unfolding of the child's self-control. In discussing the origin of self-criticism, Aronfreed says that the learning of self-criticism is represented as the prototype of a form of internalization in which the child replicates certain components of the punishments to which he has been previously exposed. The stimulus properties of the components, first presented in responses of a model, attain reinforcement value when they come to operate as signals for the attenuation of the child's anticipatory anxiety. Self-control and self-criticism are established through imitation (replication) as a means for developing internal devices for the alleviation of anxiety. Bandura et al. emphasize that inhibitions and strong self-controlling responses may be acquired through observational learning. They were interested in isolating social determinants of self-monitoring reinforcement systems.

Whiting takes the strongest position of learning through identification. He presents five stages by which the child learns the role of resource mediator. First, the child learns to predict accurately the behavior which is reciprocal to his. Then he develops status envy when he sees others having more control over resources than he has. Third, he engages in covert practice of that role which he envies. In short, he imitates privately. He will behave overtly only according to his ascribed status as determined by his culture. As he grows, he will try out those learned adult disciplinary roles. When these experiments are successful, he will tend to respond to his own wrongdoing with self-reproach.

The subject of imitation has been discussed in respect to the learning of language by several writers. Odom, Liebert, and Hill (1968) say that recent studies of language development have disconfirmed a "parrot" view of language acquisition by showing that such a conceptualization cannot account for the ability of humans to understand and produce novel grammatical utterances. They quote with approval Bandura's work which shows that the exemplary behavior of an adult model, the reward for correct performance, and attention-focusing instructions can facilitate imitative behavior in respect to the production of new sentences. They conclude that the particular combination of social learning variables employed affects the production of certain syntactic constructions that are already present in the language repertory of the child. They say further that in order for a child to comprehend and use a particular language, it is essential that it be modeled for him. But, if language acquisition is to be comprehensively understood, it will be necessary to focus more on the nature and role of those internal processes which allow the child to recognize certain patterns of stimulation, and, therefore, to interpret what is being modeled.

Brown and Fraser (1964) ask the questions: Do children imitate the baby talk of adults? Is a child's language primarily an imitation of an adult's? The answer is no; children are exposed to a much more complicated grammar than they use. McNeill (1966) observes that the statistical imbalance between pivot and open-class words means that the child cannot be imitating an adult. The child does not have the balance that an adult possesses. Imitation is not the means by which new forms are introduced into a child's grammar. Indeed, says McNeill, imitation is not important in language development as such. Shipley, Smith, and Gleitman (1969) point out that the child uses repetition for a selective approach to his linguistic environment. He repeats that which is just beyond him in natural speech. He is apparently unable to repeat long, complicated material that is far beyond his comprehension. They suggest that the child comes equipped with a set of capacities and also incapacities such that he will respond only selectively to the linguistic environment.

A general theme emerges from all this material. Imitation is a common means adopted by children to utilize their social relationships in augmenting and amplifying the capacities and dispositions they already possess. A certain social shaping may take place through the structure and nature of the conditions in which imitation takes place. Thus, when a child imitates a rewarding model or a model who has achieved his own reward, the child is shaped by the conditions of what is socially rewarding. By far the most successful imitation, and thus self-development, takes place in the context of pleasure and of playfulness. By and large, imitation is seen in painful, coercive, or difficult circumstances only when it can be associated by the child with the lesser of two pains. Imitation is always under the primary control of the child himself.

Attachments and Separations Affect Development

The writings under review seem to be part of a trend toward demystifying the presumed influences of particular attachments and separations upon the development of children. On the one hand, for many years people have been writing and thinking about the care of children as if one mother and one child constituted the system through which the child's life evolved. Fathers, siblings, nurses, playmates, and so forth were given their due as influences only around specific issues and problems, and all else was seen as dependent entirely on the specificity of the mother-child encounters. A series of findings and ideas have challenged that view. Children play by themselves and develop themselves. Children must acquire attachment to a specific person at a period of time in their development and that isolated attachment remains a special instance for only a brief period. Subsequently, children acquire particularity in their attachments to many others. It is clear that children brought up in group living circumstances do grow and develop in reasonably adequate ways. Children with poor mothering do not develop the same kinds of attachments to their mothers that we have thought vital, yet they have had the continuing presence of a mother. On the other hand, people have been writing as if separation from mother were not an ever-present characteristic of all relationships and as if significant separations were always devastating. Most mothers leave their children; many leave their children for long periods of time with friends, relatives, etc., while they work. Children have gone to nursery schools for years, even at very early ages.

Accordingly, we have come to believe that particular attachments to mothers *per se* do not represent that essential ingredient to growth and development; and separations from caretakers *per se* do not represent calamities that restrict the positive growth and development of children.

Attachment and separation are two sides of the same issue. The one is not important except as the other is activated. Thus, for example, Schaffer (1963) ties together the child's attachment to a single object at seven to eight months of age and the developing idea of object constancy. The idea of object constancy in turn depends upon the disappearance (separation) of the object and its return. Similarly, Caldwell et al. (1969) compare a group of home-reared children, who thus had not experienced major separations as far as the authors were aware, and a group of children who had participated in a group day-care program since infancy. They were concerned to see if separation during day care influenced the attachments between mothers and their children. Separation for nursery school programs of very young children did not negatively influence maternal attachments to children and vice versa. Pavenstedt's (1965) observations on upper lower-class and very low lower-class families show the tie between separation and attachment as issues. She found that the children of the lowest-class families demonstrated neither strong overt attachment nor evidence of direct experience of separation anxiety. These children failed to discriminate between adults and often ran to a stranger.

As we have indicated earlier, the child shows the ability to discriminate his mother fairly early, in the first few months of life. By eight or ten months he has developed a particular attachment to her, usually after indiscriminate attachment behavior (Schaffer, 1963; Ainsworth, 1963). Subsequently, the child uses the particularity of his mutual relationship with his mother to expand his attachments beyond her. Thus, to speak of a child's need for a single caretaker, such as a mother, in the general sense, as equally applicable throughout the first five years of life, for example, is to overlook the varying attachment enterprises that occupy the child's developmental processes.

Caldwell, Wright, Honig, and Tannenbaum (1969) and Meers and Marans (1968) take this subject in its more subtle form. Caldwell et al. note that attachment is best characterized by maintenance of proximity, by mutual pleasure in a relationship, and by need gratification. They say that the inferences about the necessity for strict individualized attachments in a child's growth have been challenged by Casler and others who argue that the deficits shown in non-attached children are more the product of inadequate environmental stimulation than of deprivation of a particular mother. That is, if a child is brought up in a context in which he is engaged with a limited group of adults, in relationships that are mutually pleasurable to him and to the adults in his environment, where reciprocity holds so that the child creates actions that bind him to others, he will form significant attachments and growth in his social relatedness without trouble. He need not have his own mother as the caretaker, or as the one and only caretaker, in his life. Meers and Marans seem to concur with this judgment. They say that reports from Israel and the USSR lend credence to the view that historical conventions of "mother" and of child care dependent upon natural mother uniqueness might be much less significant or consequential than we have believed in the past.

Separation from the mother may be conceived in terms of short separations and major separations. According to many writers, the child actively initiates separation from his mother to an increasing degree as soon as he has established a confident relationship with her. There is a constant interplay between attachment and separation, in which the child attempts to regulate the optimum balance. Insofar as the child is reared with many pleasurable, mutual relations with his caretaker, he becomes increasingly able to seek and tolerate separations from those to whom he is attached. Murphy et al. (1962) note that the separation problems recorded by Spitz, Bowlby, A. Freud, and others, can be seen more adequately in the light of feelings of uncertainty held by the child concerning his ability to handle problems. Responses to separation are more precisely taken as responses to newness, and the child's responsiveness and readiness for new situations and events is a direct result of his confidence and security. VanLeeuwen (1968) seems to adopt a similar perspective. She is interested in studying when repeated minor physical separations such as going to nursery school are connected with the positive sense of separateness and with individual development, and when they are associated with difficulty. She has noted in her initial observations on children from two-and-one-half years to four years of age who have been separating from parents at nursery school, about one-third of the children let go of the mother fairly readily within the first two weeks of school. In another third the anxiety or its derivatives were manifested well beyond the anticipated initial period and were of concern to parents and to staff. She interprets these as variations in the ability of the children to cope with the demands of a new environment. Caldwell (1967) asks: Do intermittent, short-term separations of the child from the mother impair the mother-child relationship or the development of the child? She answers in the negative. Short-cycle interruptions do not have the same effect as prolonged interruptions.

DesLauriers and Carlson (1969) and Mahler (1968) note that the child initiates separation when he has a secure base in his attachment to his mother. DesLauriers and Carlson, for example, note how the child will bring the mother close, move her away, and bring her back again in defining the preference of place. This expands with increasing age and maturity in the child. Mahler suggests the same thing.

The effects of long-term separation have not been recently studied in detail. Gardner and his co-workers (1961a, 1961b) have said that residence in a home-management house on a university campus during infancy and then placement in adoption homes seems not to have significantly affected the personalities of the children. Carlsmith (1963) has said that father absence for a long period during infancy did not profoundly affect the masculinity of boys who were later studied as college students. The significant factor, however, is not the fact of prolonged separation from a given caretaker, but the totality of the experience in which the child was embedded prior to separation and the totality of experience in his new environment. If the child exists in a damaging environment, such as Elmer (1967) describes with abused children, and moves into a highly effective environment in which a multiplicity of positive, reciprocal ties are created, he is likely to grow in a more healthy fashion than he would have found in his own home. What is important, thus, is to keep the focus on the totality of concrete actions in which the child is living his life.

Part III. Some Issues in Programs Directed toward Infants and Young Children

General Statement

Among the writings under review are reports on programs of action that have been directed toward new ways of dealing with infants and young children. From these reports we have taken a series of issues that seem to arise consistently in developing and evaluating programs. These issues are somewhat peculiar to programs dealing with young children, although in some respects they are common to all social welfare programs. The major implication to be gained from all of the topics covered in the following analysis is that programs for young children depend upon the allocation of considerable resources. There is no short cut in the proper, effective rearing of children. Each limitation of provision is taken at the expense of the children.

The issues that are discussed in Part III are:

1. Should teaching emphasize the transfer of cognitive achievements or provision of concrete relationships from which young children learn?
2. Parents are providers and receivers in early childhood education and therapy.
3. There are preferred ratios of adults to children in programs of early education and treatment.
4. Long-term programs, not short-term programs, are effective.
5. Institutional care is suitable for young children.
6. The outcomes are consistently positive, never magical.

Should Teaching Emphasize the Transfer of Cognitive Achievements or Provision of Concrete Relationships from Which Young Children Learn?

Cognitive functioning as an intellectual process (i.e., reasoning, figuring out, reflecting upon thinking through), is a form of self-regulation that is minimally developed in children five years of age and younger. Such cognitive activity is present only in actions that consume large segments of time and that build upon the ability to tie together many disparate elements into unities and relationships. Cognition is always part of the organism's general actions, not having its own world, but always contained in the organism's transactions with its environment. Because the young child's interactions are relatively short-term and relatively undifferentiated, the isolation of his cognitive processes from his sensory processes and his motor activities is indistinct.

This factor accounts for the emerging conviction that preschool education which attempts to inculcate insights, logic, and reasoning into the child, and which attempts to transfer an articulated conceptual scheme directly from the teacher to the child, violates the child's approach to the world. There has been a revival of interest in the cognitive development of young children. This new concentration on cognition has been accompanied by the realization and implementation in practice that cognition is in the actions of the child and a crystallization out from these actions. So it is that Baldwin (1965) can suggest that the controversy in preschool educational programs between giving primary attention to cognitive development or to personal adjustment is a false and misleading controversy. Caldwell and Richmond (1968) can assume, too, that one must provide both milieu for the child's education and specific programs, not one or the other, as nursery school educators have argued in the past. The new programs attend directly to the perceptual and cognitive interests of the child, but they do so in the context of a positive emotional climate and an environment free of unnecessary restrictions.

Among the various kinds of preschool education programs, only a few are limited to what might be called early academic instruction. Bereiter (1969) writes that he and Engelmann were trying to teach academic skills directly in ways that did not demand abilities of the children they demonstrably did not possess. His approach is the nearest to a purely intellectual (idealist) view of the cognitive unfolding of young children. Kohlberg (1968) says he thinks such an approach to young children fosters rote learning, which we may interpret as a kind of premature and unstable maturity of cognitive form.

Baughman and Dahlstrom (1968) describe a perspective that seems to capture the essential elements of the current view. They note that trustfulness, cooperativeness, self-sufficiency, and emotional warmth are related to intellective growth during the early years of school. Also tied to such growth are tenacity, positive reactions to success, cheerful mood, the tendency to become absorbed in school tasks, and similar traits or characteristics that belong in the category of personal maturity. When they developed a pilot project to accelerate the intellectual development of four-year-old Negro and white children, therefore, they integrated personal and cognitive experiences. Their aim was to stimulate the natural curiosity of children and to demonstrate to the children by their own behavior the intertwining of cognition and action. They worked within the context of a warm interpersonal situation which contained respect for the child and his parents, concern with the child's interests, variation in activities, rewards for the child, taking the child into the world via walks, visits to museums, etc., all of which placed the cognitive components in the context of living in the world, being through action and interaction.

Schaefer (1969) took the same stance in his home tutoring program. He had tutors working with children from lower socioeconomic groups for an hour a day, five days a week. The children were in the age range of 15 months to 36 months. The educational program was designed to develop positive relationships between the tutor and the child and his tional program with severely mentally ill children. They combine teaching focused on self-help, communication, socialization, and early academic skills. Marceau (1965) proposes to combine psychotherapy with tutorial work in respect to school activity. DesLauriers and Carlson (1969) incorporate sensory stimulation and educational activity in their treatment of autistic children, including nursery school experience that sounds much like that developed in consideration of disadvantaged children. When Dennis and Sayegh (1965) attempted to supplement experiences for an experimental group, they found that their assistants provided supplementary experiences for the control group as well, failing to keep separate the programmatic motor training and the human relationship within which it was of necessity contained.

In short, as Piaget has underscored so effectively, children at early ages are actors who increasingly utilize imagery and abstraction in organizing their actions, relating to the world, remembering what has happened to them, and so forth. The task of programs passing under the name of compensatory education has been to engage the children in actions rather than in motions. The construction of actions, in which the child deals inwardly and outwardly at the same time, in which he binds himself to people and to things, in which he is engaged in the mutual and reciprocal unfolding of pleasurable experiences, in which he is increasingly creating more complex structures, in which he opens to the new and finds it exciting, is the ground for cognitive and personal development. The teachers, and the parents with the help of teachers, are persons prepared to share in the systematic construction of actions. The child's sensory apparatuses and his mental capacities are essential ingredients to the construction of actions. They are not separate compartments to be filled, but are components of active endeavor. The child plays with language when he plays with adults. He learns object constancy when his relationships are such that people come and disappear and come again. He discovers spatial concepts when he has access to colorful toys that he can play with. These programs, thus, make life fun for the child in the sense that he derives pleasure from encounters with challenges that he masters.

A very different perspective enlightens a proposal put forth by Baratz (1969) based on views from William Stewart. This is contained in the idea that black children do not learn reading in elementary school because it is taught in a different dialect than their own. The position suggests that children who possess a developed language facility, as these children clearly do, are in no way lacking in cognitive development. Programs based on the assumption that black children need enrichment in the preschool years misjudge these children, imputing pathology to them when they are merely speaking a different language. The children do not suffer from poor cognitive formations, as these programs imply with their corrective, enrichment bent. All these children need is the proper teaching when they reach elementary school, with a central piece in their learning needs being speech and reading material cast in the dialect that they speak. Similarly, one cannot test the cognitive development of the child except in his own language.

This perspective assumes that actual parent-child relations in impoverished homes are adequate to reasonably normal cognitive and mental development, and that the achievement of spoken language is an adequate index of cognitive sophistication. Both assumptions seem open to challenge. Parents and children from impoverished homes do not appear to engage frequently in mutually fulfilling, binding, pleasurable actions.

Experience in preschool educational programs shows that such parents and children need help in just this domain and respond positively to such help. This experience tends to negate the first assumption in the argument put forth by Baratz. Few writers would concede the second assumption, that possession of language capacity is a sign of cognitive sophistication. A child may speak the language adequately and yet be quite limited in his abstract, conceptual abilities.

We may concur with Stewart, who says that we must individualize education, at least to the extent of uncovering which Negro children will have need for Negro-dialect materials, and then providing these materials where necessary. But we are reluctant to draw his conclusion that tuition in elementary school is sufficient for children who have had relatively few pleasurable, creative encounters in life before they arrive in school.

Parents Are Providers and Receivers in Early Childhood Education and Therapy

Two themes emerge from nearly every account of early childhood care that is covered in this analysis. First, parents are viewed as the major educational and therapeutic agents, and usually need help in carrying out their responsibilities. Second, parents of disadvantaged children and of severely disturbed children stand in need of assistance themselves.

In early educational projects directed at children who can be expected to show the retardation in development associated with poor early experience, the leaders of such projects are consistent in including the parents of the children as potential co-teachers. Baughman and Dahlstrom (1968) say they sought to engage the mother and involve her with her child's education. Gordon's (1969) major interest is in the development of home learning through early stimulation. He educates the parents to provide stimulation to children of two and three years of age. Schaefer (1969) notes that the participation of the mother and other family members in the activities developed by home tutors was encouraged, although it was not required. Lane (1968) says that her group attempts to get as much family involvement as possible. They have added a project to their program to train parents to help teach in the nursery school; they try to get families to use community resources and participate in community activities; they have developed a project through which the parents are enabled to develop systematic educational programs for their children in their own homes. They try to help the parents become teachers. Caldwell and Richmond (1968) note that at their center they have had difficulty getting parents to participate, but have been making the effort. Parents are involved in organizational activities associated with the center.

The argument for parental involvement in the education program is simple and important. The parents are with the children the greater proportion of their lives and cognitive development is a function of the totality of the actions in which the children are engaged. There can be no division of the day for the child along educational (work) and non-educational (leisure) dimensions such as we pretend to have for school age children and for adults. The preschool child is not attuned to education while his tutor is in his home or while he is in the day care center, and then preoccupied with living at other times. He is always in the process of experimentation and growth. The only way to truly affect his cognitive development, thus, is to be fostering it always. As Hess and Shipman (1965) put it in their study of how mothers function as teachers, the meaning of deprivation is the deprivation of meaning in the everyday circumstances of the total life of a child. Disadvantaged children experience interpersonal relationships in which their parents are limited in the construction of meaningful actions. Klaus and Gray (1968) also assert the common conviction that pervades these reports: that if no massive changes are made in the home conditions of a child, the situation which creates an original deficit will continue to take its toll. The child's development takes place day after day, in concrete, intimate detail, 24 hours a day; and any corrective program will have to take account of this fact.

Any social program of day care for the children of working mothers, or residential care for children, will have to account for the impact of all events on the cognitive development of the children. Thus, for mothers of children now considered disadvantaged who will be enabled to work, it cannot be assumed that all day care given by professionals will supplant or overcome the influences of maternal care when the child is at home. Many, if not most, mothers will still need assistance in learning how to be teachers to their children. This does not come naturally; nor will it come simply from the relief from the most serious economic worries of parents. Parents who have had limited environments for their own development will need assistance in discovering the latest insights into child development. Most of us in society today qualify as having had limited environments in our own upbringing; our views of child rearing are probably more disparate with the beliefs of experts than we realize. For example, the view that parent-child relations first and foremost should be playful, pleasurable engagements is not widely understood and accepted.

The programs directed at therapeutic care for autistic children also emphasize the participation of parents as co-therapists. The same reasoning prevails. The parents are with their children for large portions of the child's life and are therefore vital to the successful creation of productive interrelationships through which the child learns and develops. The program developed by Fenichel (1965) and reported by Doernberg et al. (1969) is one of these programs. These educators have created a home training program for seriously disturbed children. The parents are nonparticipant observers in each session. The program consists of one-hour weekly sessions with special education teachers who also help the parents to teach their child at home. They assert that they work with parents in a cooperative way on the basis of equality. All techniques were used to enable the parents to focus on their child as a person, as does a therapist, not as a collection of problems. They taught the parents how to toilet train, wean, communicate with, and socialize with the child. They taught the parents how to be in social relations with the child; how not to give in to the demands of a child when these were inappropriate, either because the child could perform more adequately than he represented or because the child would have to learn to come to terms with the world. Schopler (1967) proposes as his main goal to have parents carry out the major part of their child's treatment in the home. The parents are to be taught how to engage in human relatedness and how to encourage spontaneous, independently sustained activity. He will teach the parents what he knows of how to encourage the children to experience with many sensory modalities. DesLauriers and Carlson (1969) also speak to the incorporation of the parents in the therapeutic work. The parents are seen as central agents of the human condition which the child must experience if he is to come alive. They brought the parents periodically into sessions and discussed the program with them. They speak of the parents as co-therapists and they aim for continuity between the clinic and home. Parents were encouraged to see as many of the therapist-child sessions as possible from behind one-way mirrors.

We have observed that the parents are important to the educational and therapeutic programs because they are with their children for long periods of time and these programs pertain to the total life of the child. Implicit in this formulation is another element which, when made explicit, suggests the reason all programs direct some effort at helping the parents for themselves, as well as for their children directly. We have seen in earlier pages of this report how important is the thesis that a child grows through his participation in reciprocal, mutually satisfying relationships. The parents are the other side of that mutuality. If it is difficult for them to enter into interactions on the basis of mutuality, then they will not be able to implement the educational and therapeutic programs, even when given the mechanical techniques. Thus, it becomes essential for educators and therapists to educate and treat the parents to enable them to participate in reciprocally pleasing actions with their children.

Sometimes the parents cannot interact productively with their children because they, as parents, cannot cope with normal demands made by growing infants and children. The parents may be unable to do so either because they are oppressed by worries and burdens of everyday living (Lane, 1968; Caldwell and Richmond, 1968), or because they are incapable as a result of the lack of development that has accompanied their own growth from childhood into adulthood (Klaus and Gray, 1968; Hess and Shipman, 1965). Children require fun, openness to the new, risk, exploration, curiosity, and so forth. Without experiences that contain these ingredients, children will close up and wither, and come to fend off attempts to draw them into the stream of life and struggle. But that means that children require that their parents be open to the new, be curious, be playful, etc. if there are to be mutually enriching transactions. The hopelessness, despair, apathy, and defeat that abound throughout the ranks of the poor militate against such involvement on the part of the parents. The reasoning is much like that with respect to the children. The transactions that parents have with their children are a part of the total life of the parents. If most of the transactions in which the parents are engaged are composed of exclusive, nonreciprocal, unpleasurable entanglements and outcomes, then the relations with the children are likely to be of the same order. In the past, common sense seemed to suggest that if adults were unhappy with their work life or their marital life or their social life, they could make it up by the pleasure found in being with their children. This view may hold where life is generally adequate, but it clearly does not hold for those persons who find life mostly difficult. Parents cannot find a ray of sunshine with respect to their children when all else is cloudy.

At other times parents cannot interact productively with their children because the children make abnormal demands upon them and these demands are beyond the capacity of the parents to understand. Such is the line of argument consistently provided by programs dealing with severely disturbed young children. DesLauriers and Carlson (1969), Schopler (1967), and Doernberg et al. (1969) emphasize that they conceive the parents as being faced by extremely difficult children with whom it is not easy to construct mutually gratifying relationships. Very frequently the parents are guilty and self-punitive because they blame themselves for situations and conditions that are beyond them. They have tried in many ways to create relations with their children that will be of a healthy sort and they have failed. Mostly they have failed because the child's constitution makes severe demands upon the environment for the construction of acceptable actions. But the parents do not realize this. Half of the involvement of the therapists with the parents, therefore, is to assure them that they need not blame themselves or consider themselves failures. The other half is concerned with helping the parents to find the precise modes of relating to the child that actually reach what is needed, mutuality and challenge and pleasure in interactions.

It should now be evident why nearly all of the programs measure their success not only by the changes in the children, but by the alterations in the behavior of the parents with respect to the children and with reference also to their own participation in the world around them. Cognitive development or mental development in children is a measure of the living that a child experiences, and that living, not only in the preschool years but long after, involves his relations with his parents. The prospects for the child's continued growth and development are intimately connected with the achievements of engagement in life with the child reached by the parents. To successfully implement an early educational program for disadvantaged children or autistic children, it seems to be necessary to influence the parents. Thus, evaluations of programs such as these should include studies regarding changes in parents as well as in children.

There Are Preferred Ratios of Adults to Children in Programs of Early Education and Treatment

There is remarkable consistency in the reports about the ratio of adults to children in these programs. The most commonly held view is that there should be one adult for every four to seven children. This is a fact to be reckoned with in any planning of social programs for large numbers of children.

Lane (1968) has each member of the staff in the nursery school responsible for five to seven children, and she speaks of adding parents as teachers to supplement the staff. Caldwell and Smith (mimeo. mss.) suggest a caretaker-child ratio of about one caretaker for four children. Elsewhere, Caldwell and Richmond (1968) say that for a comfortable program a ratio of one adult to four children is necessary for children under three years of age; one adult to five or six children for three-year-olds, and one adult to six or seven children for four-year-old children. They remark that at these ratios it takes a special dedication of teachers and care-taking staff for daylong care, and that the fatigue factor makes part-time teaching desirable. Thus, the ratio rises in that more adults working part time are needed for the best day-care programs with children likely to show deficits in development. Fenichel's program (1965) for severely disturbed children is geared to having one teacher for every one to four children. Baughman and Dahlstrom (1968) had one worker for each three to five children in their pilot project for accelerating intellectual development in four-year-old children in the rural South. The individual tutoring programs (such as Schaefer's, 1969) have a ratio of one tutor for each child.

One kind of evidence for the importance of keeping this ratio as indicated in these programs is the consistency with which the various investigators have reached optimum size. A different kind of evidence comes from the observations on group care in other countries where the effort to provide day care has a broader base and longer history. Such is the case in the day-care programs of the Communist countries. Meers and Marans (1968) wrote on their studies of these programs. They reported that in the "better" institutions there was a nurse and her assistant for each group of seven or eight youngsters. This is the seemingly ideal ratio of one adult to every four children. They state that there are a number of settings in which there is only one adult for every ten children, and that these situations result from economic necessity or other reasons. They observe that this ratio is inadequate and that it seems to lead to very much depersonalization. They make the same comparative observations on the French creches where the caretaker ratios range from one to six, to one to ten children. They are firm in their conclusion that they can recommend day care only under carefully controlled conditions, and among the conditions they put forth is the staff-child ratio involved.

The reason for such heavy insistence upon the staff-child ratio is not hard to discover. The child develops through concrete transactions of a reciprocal and pleasurable nature that binds together disparate persons.

In the creation of these transactions the individuality and uniqueness of each participant must be taken sufficiently into account. If an adult has too many children to contend with, he will be unable to provide either the frequency or the individuality of attention that is required for the proper growth of the infant. This condition holds for all children, but it is especially serious and important for children from homes where their individuality is forsaken and for children whose constitutional equipment prevents them from forming easily productive interactions with adults.

The cost of social programs for preschool children is obviously a function of the personnel required. Anyone connected with policies concerning preschool children who allows ratios far discrepant from those instituted in all these programs, commits a serious error and a serious disservice. To stint in this realm is to very much invalidate the programs.

Long-Term Programs, Not Short-Term Programs, Are Effective

Two ideas seem to lie behind the interest in the first three or five years of life in respect to social programs for disadvantaged and disordered children. One of these ideas, to which we have referred several times, is that the child's autonomous regulation of intake is sufficiently developed by the age of three that further gains in growth may be hampered if the earlier years have been deficient. That is, if the first three years have been difficult for the child, he will actively fight against the world, closing himself off from its efforts to help him out of his distrust of that world based on his actual experiences. He will not be open to the new and he will be resistant to inputs that he is not prepared to handle. Children can be helped considerably after the first years of life, but the effort must be doubled because the child's own self-regulation motivates him against such help if he has been poorly handled.

The second idea is that positive care during the first three years of life will be like a vaccine; it will secure the child against the diseases of inadequate care in the home, the school, and the community. If a child spends the first years of his life in a happy circumstance, it is presumed that he will be able to master the obstacles of the world in the future. It follows from this reasoning that the major changes need be made only with respect to these first years and one need not develop programs for the other years of the child's life, at least with the same expenditure of effort given to the first few. This latter idea, however, has been negated firmly in a number of studies.

The negation of the belief that one cannot rely upon intensive short-term programs and leave all else to proceed as it is, appears in two ways. First, there are the consistent findings of a dropoff of the gains achieved in the short-term programs when these programs are terminated. There are longer-range studies that show that lasting effects do not follow from short-term programs. Second, the short-term programs that could be extended were all continued far beyond what had been planned in the first place.

Almost all the studies in the literature show a decline in performance after the short-term programs are ended for the children. Caldwell and Smith (mimeo. mss.) provide one example. They note that performance level had shown a rather sharp drop when the children had been out of the program for a year from the point at which they functioned just prior to leaving the program. Their performance was still higher than a group of matched controls, but it was inferior to their performance at the end of their participation in the program. Caldwell and Smith say they are now given booster home tutoring programs to overcome this problem. Schaefer (1969) reports on his program of home tutoring that a year after the service was terminated the IQ scores of the children had dropped significantly, indicating that children need not only early but also continuing care for optimal intellectual growth.

Elmer (1967) reported in respect to the abused children that their normal growth potential could only be realized when their environment was decidedly improved for a prolonged period of time. Otherwise, the children deteriorated. DesLauriers and Carlson (1969) report the same thing when their treatment with autistic children had to be terminated. Follow-up with the children and their parents showed a regression from the high points reached during the program of service. Dennis and Sayegh (1965) report similar results on the short-term effects of supplementary experiences upon the behavioral development of infants.

These isolated examples taken from the reports under study here could be multiplied. The evidence is fairly clear that the gains of programs that are of a short term, are gains that fail to last. Kohlberg (1968) agrees with Morrisett and others in believing that there is no compelling evidence for the long-term effectiveness of short-term educational intervention at the preschool level. Elkind (1969), in his rebuttal to Jensen (1969), makes almost the same exact assertion. There is no evidence, he says, that preschool instruction has lasting effects upon mental growth and development. He goes on to say that emphasis on preschool education has taken our eyes off the crucial years from six to twelve, which years he thinks are crucial to later academic achievement. His argument is not against preschool education, but against the assumption that preschool education can take the place of improvement of elementary school education. Baughman and Dahlstrom (1968) add their views to this line of argument. They remark that it may be possible to develop a preschool program so comprehensive and good that children exposed to it will be set upon a path which will enable them to rise above classroom deficiencies in elementary and secondary school years. They would not bet on it, however. The gains to be expected from meaningful preschool programs, they say, must be protected and nourished by upgrading the quality of traditional school programs.

Klaus and Gray (1968) state this position definitively. They note that the most effective intervention programs for preschool children that could possibly be conceived cannot be considered a form of inoculation whereby the child is forever after immune to the effects of a low-income home and of a school inappropriate to his needs. Adequate performance results from the continual interaction of the organism with its environment. Intervention programs are able to provide only a basis for future progress in schools and home that can build upon that early intervention. Only Kagan (reported by Pines, 1969) thinks that a change of behavior of mothers in the first two years would be sufficient; but he is thinking of profound changes because he talks of a needed national commitment to bring this about, and if the mothers were changed for the first two years, they would be changed for thereafter also.

Where it has been possible, project directors have expanded their programs beyond the time they originally allowed for each child to participate. Thus, Caldwell and Richmond (1968) had established their program for children between the ages of six months and three years, but now have a program that takes care of the children until they are five years old. One reason is that the children after three years had no place to go until school age and could not be expected to sustain any gains they might have made had they returned to their own homes or to a probably less than optimal neighborhood baby sitter. Deutsch (1967, 1968) reports that the early results have established that, although early intervention is of primary significance in affecting later school achievement, continuous appropriate sequenced reinforcement in the grade schools is vitally important if the child is to maintain his gains throughout his school experience.

Baratz (private conversation) has made the telling point that as people pose earlier and earlier years for intervention, they approach the suggestion of intervention in the genetics of children rather than in their social situation. Anyone who believes that early intervention is a substitute for continual and prolonged assistance to children makes this error. There is no shortcut to the helping of so-called disadvantaged children in the sense of breeding them differently, of giving them intensive care just before school age or from the age of six months to three years, without also altering the entire educational process through which they will pass. This may be difficult to accept by policymakers who seek discrete, circumscribed, relatively inexpensive programs, but it is a solidly grounded evaluation by the great majority of students of the field of development. One cannot in all honesty say that these investigators propose that special care during the early years is sufficient to help children develop to a reasonable approximation of their normal potential. Special care in this period is important, but only preliminary.

As we will see when we discuss outcomes of these programs, the investigators are not pessimistic about the chances for helping the children through social rather than genetic means. Their view is simply that short-term programs cannot replace extensive alterations in the day-care and educational policies and practices that characterize life in America today for many of our children. They are positively optimistic that significant gains can be arranged. Such gains must be fostered throughout childhood, however, not for this period or that period. Kagan is right, we suggest, when he says that a national commitment is needed. It would seem more appropriate to the sense of these reports to devote efforts toward showing the necessity for broad and profound changes on a long-term basis for these children rather than to expend much energy in pushing forward programs that promise what they cannot deliver. It may be feasible to gain financing for a demonstration program or even a widespread program of intervention for a short period of time in the lives of some children. But such programs are wasteful insofar as they leave the long term unattended. They are actually harmful in that they pretend to achievements that they cannot in fact attain; and they therefore call forth reactions that are detrimental to social programs that might be effective. One cannot be a *little bit* dead, a *little bit* pregnant, or *almost* to the moon. Similarly, short-term programs are as nothing in the life span of those most in need of help.

Institutional Care Is Suitable for Young Children

The thrust of the writings under review in respect to the value of institutional care for young children is that such care is not inherently poor or inadequate. Institutional care can fulfill the needs of a child such that his normal growth and development can proceed unhampered.

The usual problem is that institutions are not sufficiently supported to have the staff and conditions necessary to help children develop properly. It is exceedingly important, as we have discussed in respect to ratios of staff to children, that there be enough adults or developed peers available that the child can engage in reciprocally fulfilling interactions. The key to the evaluation of the adequacy of institutional care is not an abstraction such as amount of stimulation in general, having one or many caretakers, or similar issues; rather the key is whether the child is from the very beginning of life engaged in actions that contain all the attributes of action that we have discussed in Part I of this report.

The conclusion stated immediately above derives from several lines of reasoning. It starts with the concept of stimulation in institutions. White, Castle, and Held (1964) have studied infants in institutions and found that these children have an earlier onset of hand regard. This is attributed partly to the fact that such children do not have alternative visual objects available to them. They live in bland environments which fail to attract their attention, which fail to engage them and to excite them. That is, the environments are not such that the child is caught up in playful action that fits the preparedness of his constitution and that causes change and growth built upon that dispositional structure. Brodbeck and Irwin (1946) made the same point in respect to vocalization. Children in many institutions are not subjected to variations in vocalizations from adults and others, and their vocalizations do not lead them into specific encounters with others. Thus, their development of vocalization is impeded. Dennis (1960) lists among the causes of retardation among institutional children the fact that they are not propped up or held, and they are not engaged in concrete actions within their environment, but are left to their own devices in relatively restricted domains. H. Gewirtz (1968) cautions, that the issue is not stimulation or deprivation. What is to be considered as relevant in evaluating an environment is not some theoretical amount of stimulation but the particular relationship between caretaking activities and specific outcomes in the experiences of the children. Definitions of deprivation must take account of the opportunities for stimulation available to the children and of the actual impact of these opportunities on particular children.

Caldwell (1967) reminds us that the issue is not institutional care as such but rather whether the care given involves good methods. We would understand good methods to mean the implementation of all that is associated with the construction of productive interactions between children and adults. Wolff (1967) suggests this view when he notes that proper social-therapeutic interventions are often successful in ridding the child of stereotypes that are typically found when the child has lived in institutions. Therapies are effective insofar as they engage the child in mutually adequate transactions. The various studies on increased handling by adults (e.g., Rheingold, 1956; White and Castle, 1964; Weisberg, 1963) are best understood as illustrations of increased specific actions involving adults and children. The greater relationship between adults and children is associated with greater growth and development. The main problem of institutions is having the staff and the ideology that foster the creation of many specific encounters that are playful and mutual. Playfulness is often lacking because staff in institutions are employees (i.e. workers), and work is presumably not tied to the goal of playfulness and pleasure. Mutuality is often lacking because one must have time to know the individuality of the child in order to take that into account in the formation of new events that will arouse and interest, as well as fulfill, him. It is well to note that home rearing of children can often suffer from the problems connected with institutions that have minimum staff and an ideology that degrades pleasure in the rearing of children. The number of children in a family may be important to the amount of pleasure and mutuality that may be established in the home. Thus, for example, Munroe (1968) notes that in East Africa there is a direct correlation between the number of household members and the frequency with which the infant is held. The more adults in the household, the more each child is held during the course of his early childhood. Thus, if the ratios of adults to children in the home are below one adult to three or four children (remembering that the parent is a twenty-four hour a day caretaker in many instances), there will be difficulty in the way of producing constructive transactions with the children. Elmer (1967) has noted in this respect that the families with abused children tend to be larger families; the parents have more children to take care of and may be abusing their children as a way of ridding themselves of the individual demands of a given child.

One final issue with respect to instutitional care, the critical issue in the view of some people, is that of the necessity in institutions that the child experience several caretakers rather than the single parent or the stable two parents. Two groups of investigators have been led to suggest that this factor is not of overriding significance and is not necessarily as harmful as it has been presented in the past. First are those writers concerned with the specific study of attachment behavior of young children. Ainsworth (1963) and Schaffer (1963) are among this group, and they argue that having several caretakers does not make children more or less securely attached to adults. Ainsworth says explicitly that those children cared for by several adults can form a secure attachment to one as readily as those who are cared for by one person only. Schaffer notes that the facility for creating attachments depends less upon prior specific attachment to one person than to previous experience in having productive social stimulations and relationships. Prior to attachment to an individual (which can be attained in an institution when it is a need for the child) are indiscriminate attachments, and the success of these prior attachments is vital for the success of the individual attachment behavior.

A second group of investigators who have diminished the fear of institutional care for young children is comprised of those who have studied the results of group care in foreign countries where more resources and greater efforts have been made to provide good conditions in institutions than is typical in America. Wolins (1969) and Meers and Marans (1968) are illustrative of this set of investigators. Wolins concludes that it is possible to achieve considerable cognitive growth in a group-care program and that children placed before six years of age show similarities with other children at adolescence more than differences. He notes that psychosocial development of children reared in group settings may equal, exceed, or lag behind the development of those children reared at home. The differences will presumably be due both to the nature of the home and the nature of the institutions in which the children are reared. Meers and Marans concede that reports from Israel and the USSR lend credence to the view that historical conventions of mother and child care might be less significant or consequential than we have been led to expect. They go on, however, to elaborate some of the points we have been making all along in this report: they will not recommend day care or residential care *except* under carefully controlled conditions which account to the needs of the child in respect to his age, his individuality, his ability to relate to others, the staff ratios, and the availability of effective adults. Institutional care is all right if it is effective care. (They presume that home care is preferable if institutional care is ineffective, since they say that recommendation of day care depends upon the demonstration of standards which are not also applied systematically to homes.)

One final topic needs to be noted in regard to institutional care: we already have a great deal of such care in this country. A number of the reports on the bland environments, the lack of stimulation, etc., that are in the literature were the results of work done in institution in this country. The studies implicitly criticize the extent of poor handling and child care in the institutions that now function in this society. These places are currently in the practice of turning children off from life.

The Outcomes Are Consistently Positive, Never Magical

Every program reported has suggested that it has had a positive impact on the children, and usually on the parents as well. This may be partly due to the need for investigators to justify their efforts, but it is not entirely thus produced. It may also be derived in part from the fact that each program director or investigator adjusts the criteria for improvement or benefit according to the difficulty of the task. Thus, improvement may mean one thing when applied in the case of seriously disturbed children and another thing when applied to mildly disadvantaged children. There can be little doubt from these reports, however, that there are effects upon the most disturbed and the most disadvantaged that are positive in nature. These influences are pronounced in the degree to which both intensive and extensive services are provided. Short-term services of moderate impact make the least contribution; long-term intensive services make the most impact. By and large, as we have indicated in the discussion of long-term versus short-term programs, it is necessary to have programs that start early and go right through elementary school if significant and permanent gains are to be established.

We can illustrate the remarks above by a series of references. Fenichel (1965) says that indications from contact with parents and families of the experimental group are that the program of education for mentally ill children has been helpful. The mothers who at the beginning of the year were severely depressed, helpless, overwhelmed, and unable to cope with their children, are at the end of the year smiling, less anxious, attempting to manage their children, and able to try new methods for coping with them. Some of the children are more able to concentrate, attend to a task, tolerate at least a minimum of frustration, relate in a primitive way to other people, and so forth. Marceau (1965) reports similarly that the schizophrenic children who are being educated at home by college students are responding to this service. The book by DesLauriers and Carlson (1969) is based on the theme that their form of treatment for autistic children has made a positive impact on the children. Doernberg et al. (1969), reporting on the school which Fenichel heads, notes that the special training has effectively altered the children. They note that extreme alterations are not observed but distinct benefits can be counted.

With education for disadvantaged children as with therapeutic care and education for disordered children, the results are positive but not extreme, and promise no substitute for long-term, continuous programs that extend through elementary education. Hunt (1969) concludes that investigations of compensatory education have shown that traditional play school has little to offer, but programs which have made an effort to inculcate cognitive skills, language skills, and number skills whether these are taught directly or incorporated into games, show success with children of poor families. He asserts that a significant portion of this success endures. He also notes that true commitment to extensive compensatory educational programs has never yet been developed and one cannot evaluate these programs due to the fact that they have not been properly instituted. Baughman and Dahlstrom (1968) say there is a consensus among their workers, children, and parents that their preschool preparatory project carried out in the home has been worth while. Deutsch (1967, 1968) also claims that early intervention is influential in affecting later school achievement.

Scores on IQ tests have been influenced by early intervention programs, and the influence is much like that described above. In general, there are increases with short-term interventions that are skillfully applied, increases which falter when the programs are not kept up on a long-term basis. Gordon (1969) reports that his program of helping parents stimulate their children leads to an enhancement of the development of children. The experimental children were superior to the control children in respect to general IQ, hearing, speech, eye and hand coordination, and personal-social relationships. It is true that most of the gains were made by girls in the experimental group, which is a limitation on the outcomes from this study. Schaefer (1969) notes that his home-tutoring project for young children has led to more increase in IQ scores for his experimental group than for his control group, although both are behind the norms of most children as they progress. He records that a year after the intensive home tutoring was terminated the IQ scores of the children dropped significantly. Klaus and Gray (1968) found that the performance of their target children was superior to that of the control children. These target children were higher on two tests of intelligence, although by the second year of school their superiority on one of these was lost. Reading readiness tests favored the experimental children. Caldwell and Smith (mimeo. mss.) report that their day-care center affected the development of cognitive functions in the children they worked with. The main role that participation in their program served for the young disadvantaged children was to normalize the distribution of IQ scores among them. The performance curve of the children after participation in the program looks more like that of a group of children drawn randomly from the total population than one skewed to the lower end of the scale. Bereiter (1969) concludes that his program which was aimed at teaching academic skills to disadvantaged preschool children actually raised IQ's among the children. The average gain was about fifteen points. And Elmer (1967) reveals that abused children who were removed to new environmental conditions tended to have more chance of having an average IQ than those who stayed in their abusive homes.

Hunt (1969), Bereiter (1969), and Elkind (1969) all suggest, in the general discussion set off by Jensen (1969), that intervention can be positive if it is true intervention. If children of the poor are engaged in cognitive tasks and in positive human relations of discrete nature, such that they are caused to be in actions that will be associated with growth, the children respond. The compensatory program that will make a difference must involve service that takes into account the background and the constitutional readiness of the child, and that makes demands upon the social and intellectual capacities of the child. The creation of encounters that engage the young child fosters growth and development of a positive nature. The major problems of delinquency and mental illness will not be solved by these programs, but they will bring the children of the poor into the mainstream of active living in America.

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☆ U.S. GOVERNMENT PRINTING OFFICE: 1970 O–388-392

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